

BOTTOM MESONS ($B = \pm 1$)

$B^+ = u\bar{b}$, $B^0 = d\bar{b}$, $\bar{B}^0 = \bar{d}b$, $B^- = \bar{u}b$, similarly for B^* 's

NODE=MXXX045

B -particle organization

NODE=S741

NODE=S741205;DTYPE=b

Many measurements of B decays involve admixtures of B hadrons. Previously we arbitrarily included such admixtures in the B^\pm section, but because of their importance we have created two new sections: " B^\pm/B^0 Admixture" for $\gamma(4S)$ results and " $B^\pm/B^0/B_s^0/b$ -baryon Admixture" for results at higher energies. Most inclusive decay branching fractions and χ_b at high energy are found in the Admixture sections. B^0 - \bar{B}^0 mixing data are found in the B^0 section, while B_s^0 - \bar{B}_s^0 mixing data and B - \bar{B} mixing data for a B^0/B_s^0 admixture are found in the B_s^0 section. CP -violation data are found in the B^\pm , B^0 , and $B^\pm B^0$ Admixture sections. b -baryons are found near the end of the Baryon section.

The organization of the B sections is now as follows, where bullets indicate particle sections and brackets indicate reviews.

- B^\pm

mass, mean life, CP violation, branching fractions

- B^0

mass, mean life, B^0 - \bar{B}^0 mixing, CP violation,
branching fractions

- $B^\pm B^0$ Admixtures

CP violation, branching fractions

- $B^\pm/B^0/B_s^0/b$ -baryon Admixtures

mean life, production fractions, branching fractions

NODE=S741305;DTYPE=b

- B^*

mass

- $B_1(5721)^0$

mass

- $B_2^*(5747)^0$

mass

- B_s^0

mass, mean life, B_s^0 - \bar{B}_s^0 mixing, CP violation,
branching fractions

- B_s^*

mass

- $B_{s1}(5830)^0$

mass

- $B_{s2}^*(5840)^0$

NODE=S741310;DTYPE=b

- mass
- B_c^\pm
- mass, mean life, branching fractions

NODE=S741315;DTYPE=b

At the end of Baryon Listings:

- Λ_b
 - mass, mean life, branching fractions
 - Σ_b
 - mass
 - Σ_b^*
 - mass
 - Ξ_b^0, Ξ_b^-
 - mass, mean life, branching fractions
 - Ω_b^-
 - mass, branching fractions
 - b -baryon Admixture
 - mean life, branching fractions
-

 B^\pm

$$I(J^P) = \frac{1}{2}(0^-)$$

NODE=S041

I, J, P need confirmation. Quantum numbers shown are quark-model predictions.

$$\begin{aligned} \text{Mass } m_{B^\pm} &= 5279.26 \pm 0.17 \text{ MeV} \\ \text{Mean life } \tau_{B^\pm} &= (1.641 \pm 0.008) \times 10^{-12} \text{ s} \\ c\tau &= 492.0 \mu\text{m} \end{aligned}$$

CP violation

$$\begin{aligned} A_{CP}(B^+ \rightarrow J/\psi(1S)K^+) &= (1 \pm 7) \times 10^{-3} \quad (S = 1.8) \\ A_{CP}(B^+ \rightarrow J/\psi(1S)\pi^+) &= 0.007 \pm 0.033 \quad (S = 1.3) \\ A_{CP}(B^+ \rightarrow J/\psi\rho^+) &= -0.11 \pm 0.14 \\ A_{CP}(B^+ \rightarrow J/\psi K^*(892)^+) &= -0.048 \pm 0.033 \\ A_{CP}(B^+ \rightarrow \eta_c K^+) &= -0.16 \pm 0.08 \\ A_{CP}(B^+ \rightarrow \psi(2S)\pi^+) &= 0.03 \pm 0.06 \\ A_{CP}(B^+ \rightarrow \psi(2S)K^+) &= 0.008 \pm 0.021 \quad (S = 1.6) \\ A_{CP}(B^+ \rightarrow \psi(2S)K^*(892)^+) &= 0.08 \pm 0.21 \\ A_{CP}(B^+ \rightarrow \chi_{c1}(1P)\pi^+) &= 0.07 \pm 0.18 \\ A_{CP}(B^+ \rightarrow \chi_{c0} K^+) &= -0.20 \pm 0.18 \quad (S = 1.5) \\ A_{CP}(B^+ \rightarrow \chi_{c1} K^+) &= -0.009 \pm 0.033 \\ A_{CP}(B^+ \rightarrow \chi_{c1} K^*(892)^+) &= 0.5 \pm 0.5 \\ A_{CP}(B^+ \rightarrow \bar{D}^0 \pi^+) &= -0.008 \pm 0.008 \\ A_{CP}(B^+ \rightarrow D_{CP(+1)}\pi^+) &= 0.035 \pm 0.024 \\ A_{CP}(B^+ \rightarrow D_{CP(-1)}\pi^+) &= 0.017 \pm 0.026 \\ A_{CP}(B^+ \rightarrow \bar{D}^0 K^+) &= 0.07 \pm 0.04 \\ r_B(B^+ \rightarrow D^0 K^+) &= 0.096 \pm 0.014 \quad (S = 1.2) \\ \delta_B(B^+ \rightarrow D^0 K^+) &= (115 \pm 13)^\circ \\ r_B(B^+ \rightarrow \bar{D}^0 K^{*+}) &= 0.17 \pm 0.11 \quad (S = 2.3) \\ \delta_B(B^+ \rightarrow D^0 K^{*+}) &= (155 \pm 70)^\circ \quad (S = 2.0) \\ A_{CP}(B^+ \rightarrow [K^-\pi^+]_D K^+) &= -0.58 \pm 0.21 \\ A_{CP}(B^+ \rightarrow [K^-\pi^+]_{\bar{D}} K^*(892)^+) &= -0.3 \pm 0.5 \\ A_{CP}(B^+ \rightarrow [K^-\pi^+]_D \pi^+) &= 0.00 \pm 0.09 \\ A_{CP}(B^+ \rightarrow [K^-\pi^+]_{(D\pi)} \pi^+) &= -0.09 \pm 0.27 \\ A_{CP}(B^+ \rightarrow [K^-\pi^+]_{(D\gamma)} \pi^+) &= -0.7 \pm 0.6 \end{aligned}$$

NODE=S041M;DTYPE=M

NODE=S041T;DTYPE=T;OUR EVAL;
NODE=S041UNCHECKED;DTYPE=C;OUR EVAL

CLUMP=E

$$\begin{aligned} \text{NODE} &= \text{S041AX1;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AX9;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AC5;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AW1;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041ABE;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AZ2;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AX2;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AW2;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AW5;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041CQ9;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AW3;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AW4;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AD2;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AD3;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AD4;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AY2;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AY3;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041ARX;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041DRX;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041ARZ;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041DRZ;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AC0;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AC4;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AC1;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AC6;DTYPE=a;CLUMP=E} \\ \text{NODE} &= \text{S041AC7;DTYPE=a;CLUMP=E} \end{aligned}$$

$A_{CP}(B^+ \rightarrow [K^-\pi^+]_{(D\pi)} K^+) = 0.8 \pm 0.4$	NODE=S041AC8;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow [K^-\pi^+]_{(D\gamma)} K^+) = 0.4 \pm 1.0$	NODE=S041AC9;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow [\pi^+\pi^-\pi^0]_D K^+) = -0.02 \pm 0.15$	NODE=S041AC2;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow D_{CP(+1)} K^+) = 0.170 \pm 0.033 \quad (S = 1.2)$	NODE=S041AY3;DTYPE=a;CLUMP=E
$A_{ADS}(B^+ \rightarrow D K^+) = -0.52 \pm 0.15$	NODE=S041AA1;DTYPE=a;CLUMP=E
$A_{ADS}(B^+ \rightarrow D \pi^+) = 0.14 \pm 0.06$	NODE=S041AA2;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow D_{CP(-1)} K^+) = -0.10 \pm 0.07$	NODE=S041AY4;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \bar{D}^{*0} \pi^+) = -0.014 \pm 0.015$	NODE=S041AD5;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow (D_{CP(+1)}^*)^0 \pi^+) = -0.02 \pm 0.05$	NODE=S041AD6;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow (D_{CP(-1)}^*)^0 \pi^+) = -0.09 \pm 0.05$	NODE=S041AD7;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow D^{*0} K^+) = -0.07 \pm 0.04$	NODE=S041AD8;DTYPE=a;CLUMP=E
$r_B^*(B^+ \rightarrow D^{*0} K^+) = 0.114^{+0.023}_{-0.040} \quad (S = 1.2)$	NODE=S041ARY;DTYPE=a;CLUMP=E
$\delta_B^*(B^+ \rightarrow D^{*0} K^+) = (310^{+22}_{-28})^\circ \quad (S = 1.3)$	NODE=S041DRY;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow D_{CP(+1)}^* K^+) = -0.12 \pm 0.08$	NODE=S041AC+;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow D_{CP(-1)}^* K^+) = 0.07 \pm 0.10$	NODE=S041AD1;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow D_{CP(+1)} K^*(892)^+) = 0.09 \pm 0.14$	NODE=S041AD+;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow D_{CP(-1)} K^*(892)^+) = -0.23 \pm 0.22$	NODE=S041AD-;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow D_s^+ \phi) = 0.0 \pm 0.4$	NODE=S041ADP;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow D^{*+} \bar{D}^{*0}) = -0.15 \pm 0.11$	NODE=S041AS1;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow D^{*+} \bar{D}^0) = -0.06 \pm 0.13$	NODE=S041AS2;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow D^+ \bar{D}^{*0}) = 0.13 \pm 0.18$	NODE=S041AS3;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow D^+ \bar{D}^0) = -0.03 \pm 0.07$	NODE=S041AS4;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K_S^0 \pi^+) = -0.014 \pm 0.019$	NODE=S041AX4;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^+ \pi^0) = 0.037 \pm 0.021$	NODE=S041AX3;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \eta' K^+) = 0.013 \pm 0.017$	NODE=S041AX5;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \eta' K^*(892)^+) = -0.26 \pm 0.27$	NODE=S041CR7;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \eta' K_0^*(1430)^+) = 0.06 \pm 0.20$	NODE=S041CT7;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \eta' K_2^*(1430)^+) = 0.15 \pm 0.13$	NODE=S041CT8;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \eta K^+) = -0.37 \pm 0.08$	NODE=S041CP3;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \eta K^*(892)^+) = 0.02 \pm 0.06$	NODE=S041CP1;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \eta K_0^*(1430)^+) = 0.05 \pm 0.13$	NODE=S041CR5;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \eta K_2^*(1430)^+) = -0.45 \pm 0.30$	NODE=S041CR6;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \omega K^+) = 0.02 \pm 0.05$	NODE=S041AY1;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \omega K^{*+}) = 0.29 \pm 0.35$	NODE=S041CT0;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \omega (K\pi)_0^{*+}) = -0.10 \pm 0.09$	NODE=S041CT2;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \omega K_2^*(1430)^+) = 0.14 \pm 0.15$	NODE=S041CT3;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^{*0} \pi^+) = -0.04 \pm 0.09 \quad (S = 2.1)$	NODE=S041CQ4;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^*(892)^+ \pi^0) = -0.06 \pm 0.24$	NODE=S041CP8;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^+ \pi^- \pi^+) = 0.038 \pm 0.022$	NODE=S041AY6;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^+ K^- K^+ \text{nonresonant}) = 0.06 \pm 0.05$	NODE=S041CU6;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow f(980)^0 K^+) = -0.08 \pm 0.09$	NODE=S041CU7;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow f_2(1270) K^+) = -0.68^{+0.19}_{-0.17}$	NODE=S041CR0;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow f_0(1500) K^+) = 0.28 \pm 0.30$	NODE=S041CS5;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow f'_2(1525)^0 K^+) = -0.08^{+0.05}_{-0.04}$	NODE=S041CQ5;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \rho^0 K^+) = 0.37 \pm 0.10$	NODE=S041CQ6;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K_0^*(1430)^0 \pi^+) = 0.055 \pm 0.033$	NODE=S041CQ7;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K_2^*(1430)^0 \pi^+) = 0.05^{+0.29}_{-0.24}$	NODE=S041CS4;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^+ \pi^0 \pi^0) = -0.06 \pm 0.07$	NODE=S041CU4;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^0 \rho^+) = -0.12 \pm 0.17$	NODE=S041CR9;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^{*+} \pi^+ \pi^-) = 0.07 \pm 0.08$	NODE=S041AKP;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \rho^0 K^*(892)^+) = 0.31 \pm 0.13$	NODE=S041AZ1;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^*(892)^+ f_0(980)) = -0.15 \pm 0.12$	NODE=S041CR3;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow a_1^+ K^0) = 0.12 \pm 0.11$	NODE=S041CS1;DTYPE=a;CLUMP=E

$A_{CP}(B^+ \rightarrow b_1^+ K^0) = -0.03 \pm 0.15$	NODE=S041CS6;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^*(892)^0 \rho^+) = -0.01 \pm 0.16$	NODE=S041CR4;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow b_1^0 K^+) = -0.46 \pm 0.20$	NODE=S041CS2;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^0 K^+) = 0.04 \pm 0.14$	NODE=S041CQ8;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^+ K_S^0 K_S^0) = 0.04^{+0.04}_{-0.05}$	NODE=S041AY8;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^+ K^- \pi^+) = 0.00 \pm 0.10$	NODE=S041CKK;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^+ K^- K^+) = -0.017^{+0.024}_{-0.020}$	NODE=S041AY7;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \phi K^+) = 0.10 \pm 0.04$	NODE=S041AX7;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow X_0(1550) K^+) = -0.04 \pm 0.07$	NODE=S041CXK;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^{*+} K^+ K^-) = 0.11 \pm 0.09$	NODE=S041AKK;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \phi K^*(892)^+) = -0.01 \pm 0.08$	NODE=S041AX8;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \phi (K\pi)_0^{*+}) = 0.04 \pm 0.16$	NODE=S041CT1;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \phi K_1(1270)^+) = 0.15 \pm 0.20$	NODE=S041CS8;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \phi K_2^*(1430)^+) = -0.23 \pm 0.20$	NODE=S041CS9;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^+ \phi \phi) = -0.10 \pm 0.08$	NODE=S041CT9;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^+ [\phi \phi]_{\eta_c}) = 0.09 \pm 0.10$	NODE=S041CTB;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^*(892)^+ \gamma) = 0.018 \pm 0.029$	NODE=S041AKG;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \eta K^+ \gamma) = -0.12 \pm 0.07$	NODE=S041CQ3;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \phi K^+ \gamma) = -0.13 \pm 0.11 \quad (S = 1.1)$	NODE=S041APK;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \rho^+ \gamma) = -0.11 \pm 0.33$	NODE=S041CS7;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \pi^+ \pi^0) = 0.03 \pm 0.04$	NODE=S041AX0;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \pi^+ \pi^- \pi^+) = 0.03 \pm 0.06$	NODE=S041AY5;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \rho^0 \pi^+) = 0.18^{+0.09}_{-0.17}$	NODE=S041CP4;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow f_2(1270) \pi^+) = 0.41 \pm 0.30$	NODE=S041CQ0;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \rho^0(1450) \pi^+) = -0.1^{+0.4}_{-0.5}$	NODE=S041CT4;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow f_0(1370) \pi^+) = 0.72 \pm 0.22$	NODE=S041CT5;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \pi^+ \pi^- \pi^+ \text{ nonresonant}) = -0.14^{+0.23}_{-0.16}$	NODE=S041CT6;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \rho^+ \pi^0) = 0.02 \pm 0.11$	NODE=S041CP5;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \rho^+ \rho^0) = -0.05 \pm 0.05$	NODE=S041AY9;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \omega \pi^+) = -0.04 \pm 0.06$	NODE=S041AX6;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \omega \rho^+) = -0.20 \pm 0.09$	NODE=S041CP9;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \eta \pi^+) = -0.14 \pm 0.07 \quad (S = 1.4)$	NODE=S041CP2;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \eta \rho^+) = 0.11 \pm 0.11$	NODE=S041CQ2;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \eta' \pi^+) = 0.06 \pm 0.16$	NODE=S041CQ1;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow \eta' \rho^+) = 0.26 \pm 0.17$	NODE=S041CR8;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow b_1^0 \pi^+) = 0.05 \pm 0.16$	NODE=S041CS3;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow p \bar{p} \pi^+) = 0.00 \pm 0.04$	NODE=S041CP6;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow p \bar{p} K^+) = -0.16 \pm 0.07$	NODE=S041CP7;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow p \bar{p} K^*(892)^+) = 0.21 \pm 0.16 \quad (S = 1.4)$	NODE=S041AW6;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow p \bar{\Lambda} \gamma) = 0.17 \pm 0.17$	NODE=S041CLG;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow p \bar{\Lambda} \pi^0) = 0.01 \pm 0.17$	NODE=S041CS0;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^+ \ell^+ \ell^-) = -0.02 \pm 0.08$	NODE=S041CR1;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^+ e^+ e^-) = 0.14 \pm 0.14$	NODE=S041CU0;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^+ \mu^+ \mu^-) = -0.05 \pm 0.13$	NODE=S041CU1;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^{*+} \ell^+ \ell^-) = -0.09 \pm 0.14$	NODE=S041CR2;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^* e^+ e^-) = -0.14 \pm 0.23$	NODE=S041CU2;DTYPE=a;CLUMP=E
$A_{CP}(B^+ \rightarrow K^* \mu^+ \mu^-) = -0.12 \pm 0.24$	NODE=S041CU3;DTYPE=a;CLUMP=E
$\gamma(B^+ \rightarrow D^{(*)0} K^{(*)+}) = (72 \pm 11)^\circ$	NODE=S041GAM;DTYPE=a;CLUMP=E

B^- modes are charge conjugates of the modes below. Modes which do not identify the charge state of the B are listed in the B^\pm/B^0 ADMIXTURE section.

NODE=S041210;NODE=S041

The branching fractions listed below assume 50% $B^0\bar{B}^0$ and 50% B^+B^- production at the $\Upsilon(4S)$. We have attempted to bring older measurements up to date by rescaling their assumed $\Upsilon(4S)$ production ratio to 50:50 and their assumed D , D_s , D^* , and ψ branching ratios to current values whenever this would affect our averages and best limits significantly.

Indentation is used to indicate a subchannel of a previous reaction. All resonant subchannels have been corrected for resonance branching fractions to the final state so the sum of the subchannel branching fractions can exceed that of the final state.

For inclusive branching fractions, e.g., $B \rightarrow D^\pm$ anything, the values usually are multiplicities, not branching fractions. They can be greater than one.

B^+ DECAY MODES	Fraction (Γ_i/Γ)	Scale factor/ Confidence level(MeV/c)	p
Semileptonic and leptonic modes			
$\ell^+\nu_\ell$ anything	[a] (10.99 ± 0.28) %	—	NODE=S041;CLUMP=A DESIG=220
$e^+\nu_e X_c$	(10.8 ± 0.4) %	—	DESIG=473
$D\ell^+\nu_\ell$ anything	(9.8 ± 0.7) %	—	DESIG=485
$\bar{D}^0\ell^+\nu_\ell$	[a] (2.23 ± 0.12) %	2310	DESIG=145
$\bar{D}^0\tau^+\nu_\tau$	(7.7 ± 2.5) $\times 10^{-3}$	1911	DESIG=498
$\bar{D}^*(2007)^0\ell^+\nu_\ell$	[a] (5.70 ± 0.19) %	2258	DESIG=146
$\bar{D}^*(2007)^0\tau^+\nu_\tau$	(1.88 ± 0.20) %	1839	DESIG=499
$D^-\pi^+\ell^+\nu_\ell$	(4.2 ± 0.5) $\times 10^{-3}$	2306	DESIG=418
$\bar{D}_0^*(2420)^0\ell^+\nu_\ell \times$ $B(\bar{D}_0^{*0} \rightarrow D^-\pi^+)$	(2.5 ± 0.5) $\times 10^{-3}$	—	DESIG=503
$\bar{D}_2^*(2460)^0\ell^+\nu_\ell \times$ $B(\bar{D}_2^{*0} \rightarrow D^-\pi^+)$	(1.53 ± 0.16) $\times 10^{-3}$	2065	DESIG=504
$D^{(*)}n\pi\ell^+\nu_\ell (n \geq 1)$	(1.87 ± 0.26) %	—	DESIG=505
$D^{*-}\pi^+\ell^+\nu_\ell$	(6.1 ± 0.6) $\times 10^{-3}$	2254	DESIG=419
$\bar{D}_1(2420)^0\ell^+\nu_\ell \times$ $B(\bar{D}_1^0 \rightarrow D^{*-}\pi^+)$	(3.03 ± 0.20) $\times 10^{-3}$	2084	DESIG=257
$\bar{D}'_1(2430)^0\ell^+\nu_\ell \times$ $B(\bar{D}'_1^0 \rightarrow D^{*-}\pi^+)$	(2.7 ± 0.6) $\times 10^{-3}$	—	DESIG=502
$\bar{D}_2^*(2460)^0\ell^+\nu_\ell \times$ $B(\bar{D}_2^{*0} \rightarrow D^{*-}\pi^+)$	(1.01 ± 0.24) $\times 10^{-3}$	S=2.0 2065	DESIG=258
$D_s^{(*)-}K^+\ell^+\nu_\ell$	(6.1 ± 1.0) $\times 10^{-4}$	—	DESIG=616
$D_s^-K^+\ell^+\nu_\ell$	(3.0 ± 1.4) $\times 10^{-4}$	2242	DESIG=600
$D_s^{*-}K^+\ell^+\nu_\ell$	(2.9 ± 1.9) $\times 10^{-4}$	2185	DESIG=571
$\pi^0\ell^+\nu_\ell$	(7.79 ± 0.26) $\times 10^{-5}$	2638	DESIG=417
$\eta\ell^+\nu_\ell$	(3.8 ± 0.6) $\times 10^{-5}$	2611	DESIG=327
$\eta'\ell^+\nu_\ell$	(2.3 ± 0.8) $\times 10^{-5}$	2553	DESIG=479
$\omega\ell^+\nu_\ell$	[a] (1.21 ± 0.12) $\times 10^{-4}$	2582	DESIG=173
$\rho^0\ell^+\nu_\ell$	[a] (1.07 ± 0.13) $\times 10^{-4}$	2583	DESIG=174
$p\bar{p}e^+\nu_e$	< 5.2×10^{-3}	CL=90% 2467	DESIG=319
$e^+\nu_e$	< 9.8×10^{-7}	CL=90% 2640	DESIG=182
$\mu^+\nu_\mu$	< 1.0×10^{-6}	CL=90% 2639	DESIG=183
$\tau^+\nu_\tau$	(1.05 ± 0.25) $\times 10^{-4}$	S=1.1 2341	DESIG=184
$\ell^+\nu_\ell\gamma$	< 1.56×10^{-5}	CL=90% 2640	DESIG=547
$e^+\nu_e\gamma$	< 1.7×10^{-5}	CL=90% 2640	DESIG=234
$\mu^+\nu_\mu\gamma$	< 2.4×10^{-5}	CL=90% 2639	DESIG=235

Inclusive modes				NODE=S041;CLUMP=J
$D^0 X$	(8.6 \pm 0.7) %		-	DESIG=380
$\bar{D}^0 X$	(79 \pm 4) %		-	DESIG=381
$D^+ X$	(2.5 \pm 0.5) %		-	DESIG=382
$D^- X$	(9.9 \pm 1.2) %		-	DESIG=383
$D_s^+ X$	(7.9 \pm 1.4) %		-	DESIG=384
$D_s^- X$	(1.10 \pm 0.40) %		-	DESIG=385
$\Lambda_c^+ X$	(2.1 \pm 0.9) %		-	DESIG=386
$\bar{\Lambda}_c^- X$	(2.8 \pm 1.1) %		-	DESIG=387
$\bar{c} X$	(97 \pm 4) %		-	DESIG=388
$c X$	(23.4 \pm 2.2) %		-	DESIG=389
$\bar{c} c X$	(120 \pm 6) %		-	DESIG=390
D, D^*, or D_s modes				NODE=S041;CLUMP=B
$\bar{D}^0 \pi^+$	(4.81 \pm 0.15) $\times 10^{-3}$		2308	DESIG=1
$D_{CP(+1)} \pi^+$	[b] (2.20 \pm 0.26) $\times 10^{-3}$		-	DESIG=314
$D_{CP(-1)} \pi^+$	[b] (2.1 \pm 0.4) $\times 10^{-3}$		-	DESIG=315
$\bar{D}^0 \rho^+$	(1.34 \pm 0.18) %		2237	DESIG=25
$\bar{D}^0 K^+$	(3.70 \pm 0.21) $\times 10^{-4}$		2281	DESIG=256
$D_{CP(+1)} K^+$	[b] (1.91 \pm 0.15) $\times 10^{-4}$		-	DESIG=316
$D_{CP(-1)} K^+$	[b] (2.00 \pm 0.20) $\times 10^{-4}$		-	DESIG=317
$[K^- \pi^+]_D K^+$	[c] < 2.8 $\times 10^{-7}$ CL=90%		-	DESIG=358
$[K^+ \pi^-]_D K^+$	[c] < 1.8 $\times 10^{-5}$ CL=90%		-	DESIG=359
$[K^- \pi^+]_D \pi^+$	[c] (6.3 \pm 1.1) $\times 10^{-7}$		-	DESIG=399
$[K^+ \pi^-]_D \pi^+$	(1.68 \pm 0.31) $\times 10^{-4}$		-	DESIG=533
$[\pi^+ \pi^- \pi^0]_D K^-$	(4.6 \pm 0.9) $\times 10^{-6}$		-	DESIG=420
$\bar{D}^0 K^*(892)^+$	(5.3 \pm 0.4) $\times 10^{-4}$		2213	DESIG=279
$D_{CP(-1)} K^*(892)^+$	[b] (2.7 \pm 0.8) $\times 10^{-4}$		-	DESIG=423
$D_{CP(+1)} K^*(892)^+$	[b] (5.8 \pm 1.1) $\times 10^{-4}$		-	DESIG=424
$\bar{D}^0 K^+ \pi^+ \pi^-$	(5.4 \pm 2.2) $\times 10^{-4}$		2237	DESIG=601
$\bar{D}^0 K^+ \bar{K}^0$	(5.5 \pm 1.6) $\times 10^{-4}$		2189	DESIG=286
$\bar{D}^0 K^+ \bar{K}^*(892)^0$	(7.5 \pm 1.7) $\times 10^{-4}$		2071	DESIG=288
$\bar{D}^0 \pi^+ \pi^+ \pi^-$	(5.7 \pm 2.2) $\times 10^{-3}$	S=3.6	2289	DESIG=165
$\bar{D}^0 \pi^+ \pi^+ \pi^-$ nonresonant	(5 \pm 4) $\times 10^{-3}$		2289	DESIG=166
$\bar{D}^0 \pi^+ \rho^0$	(4.2 \pm 3.0) $\times 10^{-3}$		2207	DESIG=167
$\bar{D}^0 a_1(1260)^+$	(4 \pm 4) $\times 10^{-3}$		2123	DESIG=168
$\bar{D}^0 \omega \pi^+$	(4.1 \pm 0.9) $\times 10^{-3}$		2206	DESIG=276
$D^*(2010)^- \pi^+ \pi^+$	(1.35 \pm 0.22) $\times 10^{-3}$		2247	DESIG=2
$\bar{D}_1(2420)^0 \pi^+$, $\bar{D}_1^0 \rightarrow D^*(2010)^- \pi^+$	(5.3 \pm 2.3) $\times 10^{-4}$		2081	DESIG=580
$D^- \pi^+ \pi^+$	(1.07 \pm 0.05) $\times 10^{-3}$		2299	DESIG=14
$D^+ K^0$	< 2.9 $\times 10^{-6}$ CL=90%		2278	DESIG=398
$D^+ K^{*0}$	< 1.8 $\times 10^{-6}$ CL=90%		2211	DESIG=565
$D^+ K^{*0}$	< 1.4 $\times 10^{-6}$ CL=90%		2211	DESIG=614
$\bar{D}^*(2007)^0 \pi^+$	(5.18 \pm 0.26) $\times 10^{-3}$		2256	DESIG=15
$\bar{D}_{CP(+1)}^{*0} \pi^+$	[d] (2.9 \pm 0.7) $\times 10^{-3}$		-	DESIG=432
$D_{CP(-1)}^{*0} \pi^+$	[d] (2.6 \pm 1.0) $\times 10^{-3}$		-	DESIG=441
$\bar{D}^*(2007)^0 \omega \pi^+$	(4.5 \pm 1.2) $\times 10^{-3}$		2149	DESIG=275
$\bar{D}^*(2007)^0 \rho^+$	(9.8 \pm 1.7) $\times 10^{-3}$		2181	DESIG=169
$\bar{D}^*(2007)^0 K^+$	(4.20 \pm 0.34) $\times 10^{-4}$		2227	DESIG=270
$\bar{D}_{CP(+1)}^{*0} K^+$	[d] (2.8 \pm 0.4) $\times 10^{-4}$		-	DESIG=433
$\bar{D}_{CP(-1)}^{*0} K^+$	[d] (2.31 \pm 0.33) $\times 10^{-4}$		-	DESIG=442
$\bar{D}^*(2007)^0 K^*(892)^+$	(8.1 \pm 1.4) $\times 10^{-4}$		2156	DESIG=280
$\bar{D}^*(2007)^0 K^+ \bar{K}^0$	< 1.06 $\times 10^{-3}$ CL=90%		2132	DESIG=287
$\bar{D}^*(2007)^0 K^+ K^*(892)^0$	(1.5 \pm 0.4) $\times 10^{-3}$		2008	DESIG=289
$\bar{D}^*(2007)^0 \pi^+ \pi^+ \pi^-$	(1.03 \pm 0.12) %		2236	DESIG=211

$\bar{D}^*(2007)^0 a_1(1260)^+$	(1.9 ± 0.5) %	2063	DESIG=221
$\bar{D}^*(2007)^0 \pi^- \pi^+ \pi^+ \pi^0$	(1.8 ± 0.4) %	2219	DESIG=274
$\bar{D}^{*0} 3\pi^+ 2\pi^-$	(5.7 ± 1.2) $\times 10^{-3}$	2196	DESIG=379
$D^*(2010)^+ \pi^0$	< 3.6 $\times 10^{-6}$	2255	DESIG=240
$D^*(2010)^+ K^0$	< 9.0 $\times 10^{-6}$ CL=90%	2225	DESIG=269
$D^*(2010)^- \pi^+ \pi^+ \pi^0$	(1.5 ± 0.7) %	2235	DESIG=12
$D^*(2010)^- \pi^+ \pi^+ \pi^+ \pi^-$	(2.6 ± 0.4) $\times 10^{-3}$	2217	DESIG=141
$\bar{D}^{**0} \pi^+$	[e] (5.9 ± 1.3) $\times 10^{-3}$	—	DESIG=464
$\bar{D}_1^*(2420)^0 \pi^+$	(1.5 ± 0.6) $\times 10^{-3}$ S=1.3	2081	DESIG=214
$\bar{D}_1(2420)^0 \pi^+ \times B(\bar{D}_1^0 \rightarrow \bar{D}^0 \pi^+ \pi^-)$	(2.5 ± 1.7) $\times 10^{-4}$ S=4.0	2081	DESIG=443
$\bar{D}_1(2420)^0 \pi^+ \times B(\bar{D}_1^0 \rightarrow \bar{D}^0 \pi^+ \pi^- \text{ (nonresonant)})$	(2.3 ± 1.0) $\times 10^{-4}$	2081	DESIG=579
$\bar{D}_2^*(2462)^0 \pi^+ \times B(\bar{D}_2^*(2462)^0 \rightarrow D^- \pi^+)$	(3.5 ± 0.4) $\times 10^{-4}$	—	DESIG=348
$\bar{D}_2^*(2462)^0 \pi^+ \times B(\bar{D}_2^{*0} \rightarrow \bar{D}^0 \pi^- \pi^+)$	(2.3 ± 1.1) $\times 10^{-4}$	—	DESIG=581
$\bar{D}_2^*(2462)^0 \pi^+ \times B(\bar{D}_2^{*0} \rightarrow \bar{D}^0 \pi^- \pi^+ \text{ (nonresonant)})$	< 1.7 $\times 10^{-4}$ CL=90%	—	DESIG=583
$\bar{D}_2^*(2462)^0 \pi^+ \times B(\bar{D}_2^{*0} \rightarrow D^*(2010)^- \pi^+)$	(2.2 ± 1.1) $\times 10^{-4}$	—	DESIG=582
$\bar{D}_0^*(2400)^0 \pi^+ \times B(\bar{D}_0^*(2400)^0 \rightarrow D^- \pi^+)$	(6.4 ± 1.4) $\times 10^{-4}$	2128	DESIG=349
$\bar{D}_1(2421)^0 \pi^+ \times B(\bar{D}_1(2421)^0 \rightarrow D^{*-} \pi^+)$	(6.8 ± 1.5) $\times 10^{-4}$	—	DESIG=350
$\bar{D}_2^*(2462)^0 \pi^+ \times B(\bar{D}_2^*(2462)^0 \rightarrow D^{*-} \pi^+)$	(1.8 ± 0.5) $\times 10^{-4}$	—	DESIG=351
$\bar{D}'_1(2427)^0 \pi^+ \times B(\bar{D}'_1(2427)^0 \rightarrow D^{*-} \pi^+)$	(5.0 ± 1.2) $\times 10^{-4}$	—	DESIG=352
$\bar{D}_1(2420)^0 \pi^+ \times B(\bar{D}_1^0 \rightarrow \bar{D}^{*0} \pi^+ \pi^-)$	< 6 $\times 10^{-6}$ CL=90%	2081	DESIG=444
$\bar{D}_1^*(2420)^0 \rho^+$	< 1.4 $\times 10^{-3}$ CL=90%	1996	DESIG=215
$\bar{D}_2^*(2460)^0 \pi^+$	< 1.3 $\times 10^{-3}$ CL=90%	2062	DESIG=212
$\bar{D}_2^*(2460)^0 \pi^+ \times B(\bar{D}_2^{*0} \rightarrow \bar{D}^{*0} \pi^+ \pi^-)$	< 2.2 $\times 10^{-5}$ CL=90%	2062	DESIG=445
$\bar{D}_2^*(2460)^0 \rho^+$	< 4.7 $\times 10^{-3}$ CL=90%	1976	DESIG=213
$\bar{D}^0 D_s^+$	(10.0 ± 1.7) $\times 10^{-3}$	1815	DESIG=72
$D_{s0}(2317)^+ \bar{D}^0 \times B(D_{s0}(2317)^+ \rightarrow D_s^+ \pi^0)$	(7.3 ± 2.2) $\times 10^{-4}$	1605	DESIG=321
$D_{s0}(2317)^+ \bar{D}^0 \times B(D_{s0}(2317)^+ \rightarrow D_s^{*+} \gamma)$	< 7.6 $\times 10^{-4}$ CL=90%	1605	DESIG=391
$D_{s0}(2317)^+ \bar{D}^*(2007)^0 \times B(D_{s0}(2317)^+ \rightarrow D_s^+ \pi^0)$	(9 ± 7) $\times 10^{-4}$	1511	DESIG=26
$D_{sJ}(2457)^+ \bar{D}^0$	(3.1 ± 1.0) $\times 10^{-3}$	—	DESIG=322
$D_{sJ}(2457)^+ \bar{D}^0 \times B(D_{sJ}(2457)^+ \rightarrow D_s^+ \gamma)$	(4.6 ± 1.3) $\times 10^{-4}$	—	DESIG=28
$D_{sJ}(2457)^+ \bar{D}^0 \times B(D_{sJ}(2457)^+ \rightarrow D_s^+ \pi^+ \pi^-)$	< 2.2 $\times 10^{-4}$ CL=90%	—	DESIG=392
$D_{sJ}(2457)^+ \bar{D}^0 \times B(D_{sJ}(2457)^+ \rightarrow D_s^+ \pi^0)$	< 2.7 $\times 10^{-4}$ CL=90%	—	DESIG=393
$D_{sJ}(2457)^+ \bar{D}^0 \times B(D_{sJ}(2457)^+ \rightarrow D_s^{*+} \gamma)$	< 9.8 $\times 10^{-4}$ CL=90%	—	DESIG=394

$D_{sJ}(2457)^+ \bar{D}^*(2007)^0$	(-1.20 ± 0.30) %	-	DESIG=27	
$D_{sJ}(2457)^+ \bar{D}^*(2007)^0 \times$ B($D_{sJ}(2457)^+ \rightarrow D_s^+ \gamma$)	($-1.4^{+0.7}_{-0.6}$) $\times 10^{-3}$	-	DESIG=29	
$\bar{D}^0 D_{s1}(2536)^+ \times$ B($D_{s1}(2536)^+ \rightarrow$ $D^*(2007)^0 K^+ +$ $D^*(2010)^+ K^0$)	(-4.0 ± 1.0) $\times 10^{-4}$	1447	DESIG=566	
$\bar{D}^0 D_{s1}(2536)^+ \times$ B($D_{s1}(2536)^+ \rightarrow$ $D^*(2007)^0 K^+$)	(-2.2 ± 0.7) $\times 10^{-4}$	1447	DESIG=341	
$\bar{D}^*(2007)^0 D_{s1}(2536)^+ \times$ B($D_{s1}(2536)^+ \rightarrow$ $D^*(2007)^0 K^+$)	(-5.5 ± 1.6) $\times 10^{-4}$	1339	DESIG=342	
$\bar{D}^0 D_{s1}(2536)^+ \times$ B($D_{s1}(2536)^+ \rightarrow D^{*+} K^0$)	(-2.3 ± 1.1) $\times 10^{-4}$	1447	DESIG=482	
$\bar{D}^0 D_{sJ}(2700)^+ \times$ B($D_{sJ}(2700)^+ \rightarrow D^0 K^+$)	($-1.13^{+0.26}_{-0.40}$) $\times 10^{-3}$	-	DESIG=500	
$\bar{D}^{*0} D_{s1}(2536)^+ \times$ B($D_{s1}(2536)^+ \rightarrow D^{*+} K^0$)	(-3.9 ± 2.6) $\times 10^{-4}$	1339	DESIG=483	
$\bar{D}^{*0} D_{sJ}(2573)^+ \times$ B($D_{sJ}(2573)^+ \rightarrow D^0 K^+$)	< 2 $\times 10^{-4}$ CL=90%	1306	DESIG=343	
$\bar{D}^*(2007)^0 D_{sJ}(2573)^+ \times$ B($D_{sJ}(2573)^+ \rightarrow D^0 K^+$)	< 5 $\times 10^{-4}$ CL=90%	1306	DESIG=344	
$\bar{D}^0 D_s^{*+}$	(-7.6 ± 1.6) $\times 10^{-3}$	1734	DESIG=175	
$\bar{D}^*(2007)^0 D_s^+$	(-8.2 ± 1.7) $\times 10^{-3}$	1737	DESIG=176	
$\bar{D}^*(2007)^0 D_s^{*+}$	(-1.71 ± 0.24) %	1651	DESIG=177	
$D_s^{(*)+} \bar{D}^{**0}$	(-2.7 ± 1.2) %	-	DESIG=264	
$\bar{D}^*(2007)^0 D^*(2010)^+$	(-8.1 ± 1.7) $\times 10^{-4}$	1713	DESIG=259	
$\bar{D}^0 D^*(2010)^+ +$ $\bar{D}^*(2007)^0 D^+$	< 1.30 % CL=90%	1792	DESIG=260	
$\bar{D}^0 D^*(2010)^+$	(-3.9 ± 0.5) $\times 10^{-4}$	1792	DESIG=438	
$\bar{D}^0 D^+$	(-3.8 ± 0.4) $\times 10^{-4}$	1866	DESIG=261	
$\bar{D}^0 D^+ K^0$	(-1.55 ± 0.21) $\times 10^{-3}$	1571	DESIG=328	
$D^+ \bar{D}^*(2007)^0$	(-6.3 ± 1.7) $\times 10^{-4}$	1791	DESIG=459	
$\bar{D}^*(2007)^0 D^+ K^0$	(-2.1 ± 0.5) $\times 10^{-3}$	1474	DESIG=329	
$\bar{D}^0 \bar{D}^*(2010)^+ K^0$	(-3.8 ± 0.4) $\times 10^{-3}$	1476	DESIG=330	
$\bar{D}^*(2007)^0 D^*(2010)^+ K^0$	(-9.2 ± 1.2) $\times 10^{-3}$	1362	DESIG=331	
$\bar{D}^0 D^0 K^+$	(-1.45 ± 0.33) $\times 10^{-3}$	S=2.6	1577	DESIG=332
$\bar{D}^*(2007)^0 D^0 K^+$	(-2.26 ± 0.23) $\times 10^{-3}$	1481	DESIG=333	
$\bar{D}^0 D^*(2007)^0 K^+$	(-6.3 ± 0.5) $\times 10^{-3}$	1481	DESIG=334	
$\bar{D}^*(2007)^0 D^*(2007)^0 K^+$	(-1.12 ± 0.13) %	1368	DESIG=335	
$D^- D^+ K^+$	(-2.2 ± 0.7) $\times 10^{-4}$	1570	DESIG=336	
$D^- D^*(2010)^+ K^+$	(-6.3 ± 1.1) $\times 10^{-4}$	1475	DESIG=337	
$D^*(2010)^- D^+ K^+$	(-6.0 ± 1.3) $\times 10^{-4}$	1475	DESIG=338	
$D^*(2010)^- D^*(2010)^+ K^+$	(-1.32 ± 0.18) $\times 10^{-3}$	1363	DESIG=339	
$(\bar{D} + \bar{D}^*)(D + D^*)K$	(-4.05 ± 0.30) %	-	DESIG=340	
$D_s^+ \pi^0$	(-1.6 ± 0.5) $\times 10^{-5}$	2270	DESIG=192	
$D_s^{*+} \pi^0$	< 2.6 $\times 10^{-4}$ CL=90%	2215	DESIG=193	
$D_s^+ \eta$	< 4 $\times 10^{-4}$ CL=90%	2235	DESIG=206	
$D_s^{*+} \eta$	< 6 $\times 10^{-4}$ CL=90%	2178	DESIG=207	
$D_s^+ \rho^0$	< 3.0 $\times 10^{-4}$ CL=90%	2197	DESIG=186	
$D_s^{*+} \rho^0$	< 4 $\times 10^{-4}$ CL=90%	2138	DESIG=188	
$D_s^+ \omega$	< 4 $\times 10^{-4}$ CL=90%	2195	DESIG=194	
$D_s^{*+} \omega$	< 6 $\times 10^{-4}$ CL=90%	2136	DESIG=195	
$D_s^+ a_1(1260)^0$	< 1.8 $\times 10^{-3}$ CL=90%	2079	DESIG=196	
$D_s^{*+} a_1(1260)^0$	< 1.3 $\times 10^{-3}$ CL=90%	2015	DESIG=197	

$D_s^+ \phi$	(-1.9 ± 1.3) $\times 10^{-6}$	2141	DESIG=198	
$D_s^{*+} \phi$	< 1.2 $\times 10^{-5}$	CL=90%	2079	DESIG=199
$D_s^+ \bar{K}^0$	< 8 $\times 10^{-4}$	CL=90%	2242	DESIG=200
$D_s^{*+} \bar{K}^0$	< 9 $\times 10^{-4}$	CL=90%	2185	DESIG=31
$D_s^+ \bar{K}^*(892)^0$	< 4.4 $\times 10^{-6}$	CL=90%	2172	DESIG=187
$D_s^+ K^{*0}$	< 3.5 $\times 10^{-6}$	CL=90%	2172	DESIG=615
$D_s^{*+} \bar{K}^*(892)^0$	< 3.5 $\times 10^{-4}$	CL=90%	2112	DESIG=190
$D_s^- \pi^+ K^+$	(1.80 ± 0.22) $\times 10^{-4}$		2222	DESIG=32
$D_s^{*-} \pi^+ K^+$	(1.45 ± 0.24) $\times 10^{-4}$		2164	DESIG=33
$D_s^- \pi^+ K^*(892)^+$	< 5 $\times 10^{-3}$	CL=90%	2138	DESIG=34
$D_s^{*-} \pi^+ K^*(892)^+$	< 7 $\times 10^{-3}$	CL=90%	2076	DESIG=35
$D_s^- K^+ K^+$	(1.1 ± 0.4) $\times 10^{-5}$		2149	DESIG=525
$D_s^{*-} K^+ K^+$	< 1.5 $\times 10^{-5}$	CL=90%	2088	DESIG=526
Charmonium modes				
$\eta_c K^+$	(9.6 ± 1.1) $\times 10^{-4}$		1751	NODE=S041;CLUMP=C
$\eta_c K^+, \eta_c \rightarrow K_S^0 K^\mp \pi^\pm$	(2.7 ± 0.6) $\times 10^{-5}$		-	DESIG=265
$\eta_c K^*(892)^+$	(1.0 ± 0.5) $\times 10^{-3}$		1646	DESIG=575
$\eta_c(2S) K^+$	(3.4 ± 1.8) $\times 10^{-4}$		1319	DESIG=496
$\eta_c(2S) K^+, \eta_c(2S) \rightarrow K_S^0 K^\mp \pi^\pm$	(3.4 ± 2.3) $\times 10^{-6}$		-	DESIG=439
$h_c(1P) K^+ \times B(h_c(1P) \rightarrow J/\psi \pi^+ \pi^-)$	< 3.4 $\times 10^{-6}$	CL=90%	1401	DESIG=440
$X(3872) K^+$	< 3.2 $\times 10^{-4}$	CL=90%	1141	DESIG=440
$X(3872) K^+ \times B(X \rightarrow J/\psi \pi^+ \pi^-)$	(8.6 ± 0.8) $\times 10^{-6}$		1141	DESIG=320
$X(3872) K^+ \times B(X \rightarrow J/\psi \gamma)$	(2.1 ± 0.4) $\times 10^{-6}$	S=1.1	1141	DESIG=460
$X(3872) K^*(892)^+ \times B(X \rightarrow J/\psi \gamma)$	< 4.8 $\times 10^{-6}$	CL=90%	939	DESIG=536
$X(3872) K^+ \times B(X \rightarrow \psi(2S) \gamma)$	(4 ± 4) $\times 10^{-6}$	S=2.5	1141	DESIG=537
$X(3872) K^*(892)^+ \times B(X \rightarrow \psi(2S) \gamma)$	< 2.8 $\times 10^{-5}$	CL=90%	939	DESIG=538
$X(3872) K^+ \times B(X \rightarrow D^0 \bar{D}^0)$	< 6.0 $\times 10^{-5}$	CL=90%	1141	DESIG=363
$X(3872) K^+ \times B(X \rightarrow D^+ D^-)$	< 4.0 $\times 10^{-5}$	CL=90%	1141	DESIG=364
$X(3872) K^+ \times B(X \rightarrow D^0 \bar{D}^0 \pi^0)$	(1.0 ± 0.4) $\times 10^{-4}$		1141	DESIG=365
$X(3872) K^+ \times B(X \rightarrow \bar{D}^{*0} D^0)$	(8.5 ± 2.6) $\times 10^{-5}$	S=1.4	1141	DESIG=366
$X(3872) K^+ \times B(X \rightarrow J/\psi(1S) \eta)$	< 7.7 $\times 10^{-6}$	CL=90%	1141	DESIG=355
$X(3872)^+ K^0 \times B(X(3872)^+ \rightarrow J/\psi(1S) \pi^+ \pi^0)$	[f] < 6.1 $\times 10^{-6}$	CL=90%	-	DESIG=402
$X(4430)^+ K^0 \times B(X^+ \rightarrow J/\psi \pi^+)$	< 1.5 $\times 10^{-5}$	CL=95%	-	DESIG=534
$X(4430)^+ K^0 \times B(X^+ \rightarrow \psi(2S) \pi^+)$	< 4.7 $\times 10^{-5}$	CL=95%	-	DESIG=535
$X(4260)^0 K^+ \times B(X^0 \rightarrow J/\psi \pi^+ \pi^-)$	< 2.9 $\times 10^{-5}$	CL=95%	-	DESIG=421
$X(3915)^0 K^+ \times B(X^0 \rightarrow J/\psi \gamma)$	< 1.4 $\times 10^{-5}$	CL=90%	-	DESIG=461
$Z(3930)^0 K^+ \times B(Z^0 \rightarrow J/\psi \gamma)$	< 2.5 $\times 10^{-6}$	CL=90%	-	DESIG=462
$J/\psi(1S) K^+$	(1.028 ± 0.031) $\times 10^{-3}$		1683	DESIG=3
$J/\psi(1S) K^+ \pi^+ \pi^-$	(8.1 ± 1.3) $\times 10^{-4}$	S=2.5	1612	DESIG=19
$J/\psi(1S) K^*(892)^+$	(1.44 ± 0.08) $\times 10^{-3}$		1571	DESIG=142

$J/\psi(1S)K(1270)^+$	(1.8 ± 0.5) × 10 ⁻³	1390	DESIG=271	
$J/\psi(1S)K(1400)^+$	< 5 × 10 ⁻⁴	CL=90%	1308	DESIG=272
$J/\psi(1S)\eta K^+$	(1.08 ± 0.33) × 10 ⁻⁴		1510	DESIG=354
$J/\psi(1S)\eta' K^+$	< 8.8 × 10 ⁻⁵	CL=90%	1273	DESIG=477
$J/\psi(1S)\phi K^+$	(5.2 ± 1.7) × 10 ⁻⁵	S=1.2	1227	DESIG=268
$X(4140)K^+, X \rightarrow J/\psi(1S)\phi$	< 4 × 10 ⁻⁶	CL=90%	—	DESIG=602
$X(4274)K^+, X \rightarrow J/\psi(1S)\phi$	< 4 × 10 ⁻⁶	CL=90%	—	DESIG=603
$J/\psi(1S)\omega K^+$	(3.20 ± 0.60) × 10 ⁻⁴		1388	DESIG=528
$X(3872)K^+ \times B(X \rightarrow J/\psi\omega)$	(6.0 ± 2.2) × 10 ⁻⁶		1141	DESIG=556
$X(3915)K^+ \times B(X \rightarrow J/\psi\omega)$	(3.0 ± 0.9) × 10 ⁻⁵		1103	DESIG=555
$J/\psi(1S)\pi^+$	(4.1 ± 0.4) × 10 ⁻⁵	S=2.6	1727	DESIG=222
$J/\psi(1S)\rho^+$	(5.0 ± 0.8) × 10 ⁻⁵		1611	DESIG=226
$J/\psi(1S)\pi^+\pi^0$ nonresonant	< 7.3 × 10 ⁻⁶	CL=90%	1717	DESIG=478
$J/\psi(1S)a_1(1260)^+$	< 1.2 × 10 ⁻³	CL=90%	1415	DESIG=227
$J/\psi(1S)p\bar{A}$	(1.18 ± 0.31) × 10 ⁻⁵		567	DESIG=318
$J/\psi(1S)\bar{\Sigma}^0 p$	< 1.1 × 10 ⁻⁵	CL=90%	—	DESIG=422
$J/\psi(1S)D^+$	< 1.2 × 10 ⁻⁴	CL=90%	870	DESIG=395
$J/\psi(1S)\bar{D}^0\pi^+$	< 2.5 × 10 ⁻⁵	CL=90%	665	DESIG=396
$\psi(2S)\pi^+$	(2.44 ± 0.30) × 10 ⁻⁵		1347	DESIG=524
$\psi(2S)K^+$	(6.27 ± 0.24) × 10 ⁻⁴		1284	DESIG=20
$\psi(2S)K^*(892)^+$	(6.7 ± 1.4) × 10 ⁻⁴	S=1.3	1115	DESIG=143
$\psi(2S)K^+\pi^+\pi^-$	(4.3 ± 0.5) × 10 ⁻⁴		1179	DESIG=144
$\psi(3770)K^+$	(4.9 ± 1.3) × 10 ⁻⁴		1218	DESIG=360
$\psi(3770)K^+ \times B(\psi \rightarrow D^0\bar{D}^0)$	(1.6 ± 0.4) × 10 ⁻⁴	S=1.1	1218	DESIG=361
$\psi(3770)K^+ \times B(\psi \rightarrow D^+D^-)$	(9.4 ± 3.5) × 10 ⁻⁵		1218	DESIG=362
$\chi_{c0}\pi^+ \times B(\chi_{c0} \rightarrow \pi^+\pi^-)$	< 1 × 10 ⁻⁷	CL=90%	1531	DESIG=409
$\chi_{c0}(1P)K^+$	(1.49 ± 0.15) × 10 ⁻⁴		1478	DESIG=266
$\chi_{c0}K^*(892)^+$	< 2.1 × 10 ⁻⁴	CL=90%	1341	DESIG=435
$\chi_{c2}\pi^+ \times B(\chi_{c2} \rightarrow \pi^+\pi^-)$	< 1 × 10 ⁻⁷	CL=90%	1437	DESIG=542
$\chi_{c2}K^+$	(1.1 ± 0.4) × 10 ⁻⁵		1379	DESIG=436
$\chi_{c2}K^*(892)^+$	< 1.2 × 10 ⁻⁴	CL=90%	1227	DESIG=437
$\chi_{c1}(1P)\pi^+$	(2.2 ± 0.5) × 10 ⁻⁵		1468	DESIG=468
$\chi_{c1}(1P)K^+$	(4.79 ± 0.23) × 10 ⁻⁴		1412	DESIG=171
$\chi_{c1}(1P)K^*(892)^+$	(3.0 ± 0.6) × 10 ⁻⁴	S=1.1	1265	DESIG=216
$h_c(1P)K^+$	< 3.8 × 10 ⁻⁵		1401	DESIG=467

K or K* modes

$K^0\pi^+$	(2.38 ± 0.07) × 10 ⁻⁵	2614	NODE=S041;CLUMP=D DESIG=5	
$K^+\pi^0$	(1.29 ± 0.05) × 10 ⁻⁵	2615	DESIG=223	
$\eta' K^+$	(7.06 ± 0.25) × 10 ⁻⁵	2528	DESIG=248	
$\eta' K^*(892)^+$	(4.8 ± 1.8) × 10 ⁻⁶	2472	DESIG=244	
$\eta' K_0^*(1430)^+$	(5.2 ± 2.1) × 10 ⁻⁶	—	DESIG=552	
$\eta' K_2^*(1430)^+$	(2.8 ± 0.5) × 10 ⁻⁵	2346	DESIG=553	
ηK^+	(2.4 ± 0.4) × 10 ⁻⁶	S=1.7	2588	DESIG=245
$\eta K^*(892)^+$	(1.93 ± 0.16) × 10 ⁻⁵		2534	DESIG=246
$\eta K_0^*(1430)^+$	(1.8 ± 0.4) × 10 ⁻⁵		—	DESIG=456
$\eta K_2^*(1430)^+$	(9.1 ± 3.0) × 10 ⁻⁶		2414	DESIG=457
$\eta(1295)K^+ \times B(\eta(1295) \rightarrow \eta\pi\pi)$	(2.9 ± 0.8) × 10 ⁻⁶	2455	DESIG=510	
$\eta(1405)K^+ \times B(\eta(1405) \rightarrow \eta\pi\pi)$	< 1.3 × 10 ⁻⁶	CL=90%	2425	DESIG=511
$\eta(1405)K^+ \times B(\eta(1405) \rightarrow K^*K)$	< 1.2 × 10 ⁻⁶	CL=90%	2425	DESIG=512

$\eta(1475) K^+ \times B(\eta(1475) \rightarrow K^* K)$	(-1.38 ± 0.21) $\times 10^{-5}$	2406	DESIG=513	
$f_1(1285) K^+$	< 2.0 $\times 10^{-6}$	CL=90%	2458	DESIG=514
$f_1(1420) K^+ \times B(f_1(1420) \rightarrow \eta \pi \pi)$	< 2.9 $\times 10^{-6}$	CL=90%	2420	DESIG=515
$f_1(1420) K^+ \times B(f_1(1420) \rightarrow K^* K)$	< 4.1 $\times 10^{-6}$	CL=90%	2420	DESIG=516
$\phi(1680) K^+ \times B(\phi(1680) \rightarrow K^* K)$	< 3.4 $\times 10^{-6}$	CL=90%	2344	DESIG=517
$f_0(1500) K^+$	(3.7 ± 2.2) $\times 10^{-6}$	2398	DESIG=415	
ωK^+	(6.7 ± 0.8) $\times 10^{-6}$	S=1.8	2557	DESIG=251
$\omega K^*(892)^+$	< 7.4 $\times 10^{-6}$	CL=90%	2503	DESIG=252
$\omega(K\pi)_0^{*+}$	(2.8 ± 0.4) $\times 10^{-5}$	-	DESIG=530	
$\omega K_0^*(1430)^+$	(2.4 ± 0.5) $\times 10^{-5}$	-	DESIG=531	
$\omega K_2^*(1430)^+$	(2.1 ± 0.4) $\times 10^{-5}$	2380	DESIG=532	
$a_0(980)^+ K^0 \times B(a_0(980)^+ \rightarrow \eta \pi^+)$	< 3.9 $\times 10^{-6}$	CL=90%	-	DESIG=378
$a_0(980)^0 K^+ \times B(a_0(980)^0 \rightarrow \eta \pi^0)$	< 2.5 $\times 10^{-6}$	CL=90%	-	DESIG=377
$K^*(892)^0 \pi^+$	(1.01 ± 0.09) $\times 10^{-5}$	2562	DESIG=6	
$K^*(892)^+ \pi^0$	(8.2 ± 1.9) $\times 10^{-6}$	2563	DESIG=225	
$K^+ \pi^- \pi^+$	(5.10 ± 0.29) $\times 10^{-5}$	2609	DESIG=282	
$K^+ \pi^- \pi^+ \text{ nonresonant}$	(1.63 ± 0.21) $\times 10^{-5}$	2609	DESIG=59	
$\omega(782) K^+$	(6 ± 9) $\times 10^{-6}$	2557	DESIG=507	
$K^+ f_0(980) \times B(f_0(980) \rightarrow \pi^+ \pi^-)$	(9.4 ± 1.0) $\times 10^{-6}$	2522	DESIG=281	
$f_2(1270)^0 K^+$	(1.07 ± 0.27) $\times 10^{-6}$	-	DESIG=412	
$f_0(1370)^0 K^+ \times B(f_0(1370)^0 \rightarrow \pi^+ \pi^-)$	< 1.07 $\times 10^{-5}$	CL=90%	-	DESIG=413
$\rho^0(1450) K^+ \times B(\rho^0(1450) \rightarrow \pi^+ \pi^-)$	< 1.17 $\times 10^{-5}$	CL=90%	-	DESIG=414
$f'_2(1525) K^+ \times B(f'_2(1525) \rightarrow \pi^+ \pi^-)$	< 3.4 $\times 10^{-6}$	CL=90%	2392	DESIG=416
$K^+ \rho^0$	(3.7 ± 0.5) $\times 10^{-6}$	2559	DESIG=7	
$K_0^*(1430)^0 \pi^+$	(4.5 ± 0.9) $\times 10^{-5}$	S=1.5	2445	DESIG=410
$K_2^*(1430)^0 \pi^+$	(5.6 ± 2.2) $\times 10^{-6}$	2445	DESIG=152	
$K^*(1410)^0 \pi^+$	< 4.5 $\times 10^{-5}$	CL=90%	2448	DESIG=427
$K^*(1680)^0 \pi^+$	< 1.2 $\times 10^{-5}$	CL=90%	2358	DESIG=411
$K^+ \pi^0 \pi^0$	(1.62 ± 0.19) $\times 10^{-5}$	2610	DESIG=584	
$f_0(980) K^+ \times B(f_0 \rightarrow \pi^0 \pi^0)$	(2.8 ± 0.8) $\times 10^{-6}$	2522	DESIG=585	
$K^- \pi^+ \pi^+$	< 9.5 $\times 10^{-7}$	CL=90%	2609	DESIG=283
$K^- \pi^+ \pi^+ \text{ nonresonant}$	< 5.6 $\times 10^{-5}$	CL=90%	2609	DESIG=229
$K_1(1270)^0 \pi^+$	< 4.0 $\times 10^{-5}$	CL=90%	2484	DESIG=550
$K_1(1400)^0 \pi^+$	< 3.9 $\times 10^{-5}$	CL=90%	2451	DESIG=151
$K^0 \pi^+ \pi^0$	< 6.6 $\times 10^{-5}$	CL=90%	2609	DESIG=305
$K^0 \rho^+$	(8.0 ± 1.5) $\times 10^{-6}$	2558	DESIG=224	
$K^*(892)^+ \pi^+ \pi^-$	(7.5 ± 1.0) $\times 10^{-5}$	2557	DESIG=163	
$K^*(892)^+ \rho^0$	(4.6 ± 1.1) $\times 10^{-6}$	2504	DESIG=153	
$K^*(892)^+ f_0(980)$	(4.2 ± 0.7) $\times 10^{-6}$	2466	DESIG=455	
$a_1^+ K^0$	(3.5 ± 0.7) $\times 10^{-5}$	-	DESIG=487	
$b_1^+ K^0 \times B(b_1^+ \rightarrow \omega \pi^+)$	(9.6 ± 1.9) $\times 10^{-6}$	-	DESIG=508	
$K^*(892)^0 \rho^+$	(9.2 ± 1.5) $\times 10^{-6}$	2504	DESIG=405	
$K_1(1400)^+ \rho^0$	< 7.8 $\times 10^{-4}$	CL=90%	2388	DESIG=154
$K_2^*(1430)^+ \rho^0$	< 1.5 $\times 10^{-3}$	CL=90%	2381	DESIG=155
$b_1^0 K^+ \times B(b_1^0 \rightarrow \omega \pi^0)$	(9.1 ± 2.0) $\times 10^{-6}$	-	DESIG=491	

$b_1^+ K^{*0} \times B(b_1^+ \rightarrow \omega\pi^+)$	< 5.9	$\times 10^{-6}$	CL=90%	-	DESIG=543
$b_1^0 K^{*+} \times B(b_1^0 \rightarrow \omega\pi^0)$	< 6.7	$\times 10^{-6}$	CL=90%	-	DESIG=544
$K^+ \bar{K}^0$	(1.19 \pm 0.18)	$\times 10^{-6}$		2593	DESIG=241
$\bar{K}^0 K^+ \pi^0$	< 2.4	$\times 10^{-5}$	CL=90%	2578	DESIG=306
$K^+ K_S^0 K_S^0$	(1.08 \pm 0.06)	$\times 10^{-5}$		2521	DESIG=323
$f_0(980) K^+, f_0 \rightarrow K_S^0 K_S^0$	(1.47 \pm 0.33)	$\times 10^{-5}$		-	DESIG=597
$f_0(1710) K^+, f_0 \rightarrow K_S^0 K_S^0$	(4.8 \pm 4.0)	$\times 10^{-7}$		-	DESIG=598
$K^+ K_S^0 K_S^0$ nonresonant	(2.0 \pm 0.4)	$\times 10^{-5}$		2521	DESIG=599
$K_S^0 K_S^0 \pi^+$	< 5.1	$\times 10^{-7}$	CL=90%	2577	DESIG=324
$K^+ K^- \pi^+$	(5.0 \pm 0.7)	$\times 10^{-6}$		2578	DESIG=284
$K^+ K^- \pi^+$ nonresonant	< 7.5	$\times 10^{-5}$	CL=90%	2578	DESIG=230
$K^+ \bar{K}^*(892)^0$	< 1.1	$\times 10^{-6}$	CL=90%	2540	DESIG=263
$K^+ \bar{K}_0^*(1430)^0$	< 2.2	$\times 10^{-6}$	CL=90%	2421	DESIG=501
$K^+ K^+ \pi^-$	< 1.6	$\times 10^{-7}$	CL=90%	2578	DESIG=285
$K^+ K^+ \pi^-$ nonresonant	< 8.79	$\times 10^{-5}$	CL=90%	2578	DESIG=262
$f_2'(1525) K^+$	(1.8 \pm 0.5)	$\times 10^{-6}$	S=1.1	2392	DESIG=430
$K^{*+} \pi^+ K^-$	< 1.18	$\times 10^{-5}$	CL=90%	2524	DESIG=453
$K^*(892)^+ K^*(892)^0$	(1.2 \pm 0.5)	$\times 10^{-6}$		2484	DESIG=277
$K^{*+} K^+ \pi^-$	< 6.1	$\times 10^{-6}$	CL=90%	2524	DESIG=454
$K^+ K^- K^+$	(3.40 \pm 0.14)	$\times 10^{-5}$	S=1.4	2523	DESIG=160
$K^+ \phi$	(8.8 \pm 0.7)	$\times 10^{-6}$	S=1.1	2516	DESIG=8
$f_0(980) K^+ \times B(f_0(980) \rightarrow K^+ K^-)$	(9.4 \pm 3.2)	$\times 10^{-6}$		2522	DESIG=428
$a_2(1320) K^+ \times B(a_2(1320) \rightarrow K^+ K^-)$	< 1.1	$\times 10^{-6}$	CL=90%	2449	DESIG=429
$X_0(1550) K^+ \times B(X_0(1550) \rightarrow K^+ K^-)$	(4.3 \pm 0.7)	$\times 10^{-6}$		-	DESIG=450
$\phi(1680) K^+ \times B(\phi(1680) \rightarrow K^+ K^-)$	< 8	$\times 10^{-7}$	CL=90%	2344	DESIG=431
$f_0(1710) K^+ \times B(f_0(1710) \rightarrow K^+ K^-)$	(1.1 \pm 0.6)	$\times 10^{-6}$		2331	DESIG=449
$K^+ K^- K^+$ nonresonant	(2.38 \pm 0.28)	$\times 10^{-5}$		2523	DESIG=231
$K^*(892)^+ K^+ K^-$	(3.6 \pm 0.5)	$\times 10^{-5}$		2466	DESIG=164
$K^*(892)^+ \phi$	(10.0 \pm 2.0)	$\times 10^{-6}$	S=1.7	2460	DESIG=156
$\phi(K\pi)_0^{*+}$	(8.3 \pm 1.6)	$\times 10^{-6}$		-	DESIG=518
$\phi K_1(1270)^+$	(6.1 \pm 1.9)	$\times 10^{-6}$		2375	DESIG=519
$\phi K_1(1400)^+$	< 3.2	$\times 10^{-6}$	CL=90%	2339	DESIG=157
$\phi K^*(1410)^+$	< 4.3	$\times 10^{-6}$	CL=90%	-	DESIG=520
$\phi K_0^*(1430)^+$	(7.0 \pm 1.6)	$\times 10^{-6}$		-	DESIG=521
$\phi K_2^*(1430)^+$	(8.4 \pm 2.1)	$\times 10^{-6}$		2333	DESIG=158
$\phi K_2^*(1770)^+$	< 1.50	$\times 10^{-5}$	CL=90%	-	DESIG=522
$\phi K_2^*(1820)^+$	< 1.63	$\times 10^{-5}$	CL=90%	-	DESIG=523
$a_1^+ K^{*0}$	< 3.6	$\times 10^{-6}$	CL=90%	-	DESIG=554
$K^+ \phi\phi$	(5.0 \pm 1.2)	$\times 10^{-6}$	S=2.3	2306	DESIG=325
$\eta' \eta' K^+$	< 2.5	$\times 10^{-5}$	CL=90%	2338	DESIG=452
$\omega \phi K^+$	< 1.9	$\times 10^{-6}$	CL=90%	2374	DESIG=540
$X(1812) K^+ \times B(X \rightarrow \omega\phi)$	< 3.2	$\times 10^{-7}$	CL=90%	-	DESIG=541
$K^*(892)^+ \gamma$	(4.21 \pm 0.18)	$\times 10^{-5}$		2564	DESIG=9
$K_1(1270)^+ \gamma$	(4.3 \pm 1.3)	$\times 10^{-5}$		2486	DESIG=53
$\eta K^+ \gamma$	(7.9 \pm 0.9)	$\times 10^{-6}$		2588	DESIG=403
$\eta' K^+ \gamma$	(2.9 \pm 1.0)	$\times 10^{-6}$		2528	DESIG=451
$\phi K^+ \gamma$	(2.7 \pm 0.4)	$\times 10^{-6}$	S=1.2	2516	DESIG=347
$K^+ \pi^- \pi^+ \gamma$	(2.76 \pm 0.22)	$\times 10^{-5}$	S=1.2	2609	DESIG=307
$K^*(892)^0 \pi^+ \gamma$	(2.0 \pm 0.7)	$\times 10^{-5}$		2562	DESIG=308

$K^+ \rho^0 \gamma$	< 2.0	$\times 10^{-5}$	CL=90%	2559	DESIG=309
$K^+ \pi^- \pi^+ \gamma$ nonresonant	< 9.2	$\times 10^{-6}$	CL=90%	2609	DESIG=310
$K^0 \pi^+ \pi^0 \gamma$	(4.6 ± 0.5) $\times 10^{-5}$			2609	DESIG=474
$K_1(1400)^+ \gamma$	< 1.5	$\times 10^{-5}$	CL=90%	2453	DESIG=54
$K_2^*(1430)^+ \gamma$	(1.4 ± 0.4) $\times 10^{-5}$			2447	DESIG=55
$K^*(1680)^+ \gamma$	< 1.9	$\times 10^{-3}$	CL=90%	2360	DESIG=56
$K_3^*(1780)^+ \gamma$	< 3.9	$\times 10^{-5}$	CL=90%	2341	DESIG=57
$K_4^*(2045)^+ \gamma$	< 9.9	$\times 10^{-3}$	CL=90%	2244	DESIG=58
Light unflavored meson modes					
$\rho^+ \gamma$	(9.8 ± 2.5) $\times 10^{-7}$			2583	NODE=S041;CLUMP=E
$\pi^+ \pi^0$	(5.5 ± 0.4) $\times 10^{-6}$	S=1.2		2636	DESIG=267
$\pi^+ \pi^+ \pi^-$	(1.52 ± 0.14) $\times 10^{-5}$			2630	DESIG=16
$\rho^0 \pi^+$	(8.3 ± 1.2) $\times 10^{-6}$			2581	DESIG=63
$\pi^+ f_0(980) \times B(f_0(980) \rightarrow \pi^+ \pi^-)$	< 1.5	$\times 10^{-6}$	CL=90%	2545	DESIG=4
$\pi^+ f_2(1270)$	(1.6 ± 0.7) $\times 10^{-6}$			2484	DESIG=61
$\rho(1450)^0 \pi^+ \times B(\rho^0 \rightarrow \pi^+ \pi^-)$	(1.4 ± 0.6) $\times 10^{-6}$			2434	DESIG=406
$f_0(1370) \pi^+ \times B(f_0(1370) \rightarrow \pi^+ \pi^-)$	< 4.0	$\times 10^{-6}$	CL=90%	2460	DESIG=407
$f_0(500) \pi^+ \times B(f_0(500) \rightarrow \pi^+ \pi^-)$	< 4.1	$\times 10^{-6}$	CL=90%	-	DESIG=408
$\pi^+ \pi^- \pi^+ \text{nonresonant}$	(5.3 ± 1.5) $\times 10^{-6}$			2630	DESIG=228
$\pi^+ \pi^0 \pi^0$	< 8.9	$\times 10^{-4}$	CL=90%	2631	DESIG=73
$\rho^+ \pi^0$	(1.09 ± 0.14) $\times 10^{-5}$			2581	DESIG=74
$\pi^+ \pi^- \pi^+ \pi^0$	< 4.0	$\times 10^{-3}$	CL=90%	2622	DESIG=75
$\rho^+ \rho^0$	(2.40 ± 0.19) $\times 10^{-5}$			2523	DESIG=76
$\rho^+ f_0(980) \times B(f_0(980) \rightarrow \pi^+ \pi^-)$	< 2.0	$\times 10^{-6}$	CL=90%	2486	DESIG=458
$a_1(1260)^+ \pi^0$	(2.6 ± 0.7) $\times 10^{-5}$			2494	DESIG=77
$a_1(1260)^0 \pi^+$	(2.0 ± 0.6) $\times 10^{-5}$			2494	DESIG=78
$\omega \pi^+$	(6.9 ± 0.5) $\times 10^{-6}$			2580	DESIG=79
$\omega \rho^+$	(1.59 ± 0.21) $\times 10^{-5}$			2522	DESIG=253
$\eta \pi^+$	(4.02 ± 0.27) $\times 10^{-6}$			2609	DESIG=80
$\eta \rho^+$	(7.0 ± 2.9) $\times 10^{-6}$	S=2.8		2553	DESIG=247
$\eta' \pi^+$	(2.7 ± 0.9) $\times 10^{-6}$	S=1.9		2551	DESIG=242
$\eta' \rho^+$	(9.7 ± 2.2) $\times 10^{-6}$			2492	DESIG=243
$\phi \pi^+$	< 2.4	$\times 10^{-7}$	CL=90%	2539	DESIG=254
$\phi \rho^+$	< 3.0	$\times 10^{-6}$	CL=90%	2480	DESIG=255
$a_0(980)^0 \pi^+ \times B(a_0(980)^0 \rightarrow \eta \pi^0)$	< 5.8	$\times 10^{-6}$	CL=90%	-	DESIG=376
$a_0(980)^+ \pi^0 \times B(a_0^+ \rightarrow \eta \pi^+)$	< 1.4	$\times 10^{-6}$	CL=90%	-	DESIG=488
$\pi^+ \pi^+ \pi^- \pi^-$	< 8.6	$\times 10^{-4}$	CL=90%	2608	DESIG=81
$\rho^0 a_1(1260)^+$	< 6.2	$\times 10^{-4}$	CL=90%	2433	DESIG=17
$\rho^0 a_2(1320)^+$	< 7.2	$\times 10^{-4}$	CL=90%	2410	DESIG=18
$b_1^0 \pi^+ \times B(b_1^0 \rightarrow \omega \pi^0)$	(6.7 ± 2.0) $\times 10^{-6}$			-	DESIG=492
$b_1^+ \pi^0 \times B(b_1^+ \rightarrow \omega \pi^+)$	< 3.3	$\times 10^{-6}$	CL=90%	-	DESIG=509
$\pi^+ \pi^+ \pi^- \pi^- \pi^0$	< 6.3	$\times 10^{-3}$	CL=90%	2592	DESIG=83
$b_1^+ \rho^0 \times B(b_1^+ \rightarrow \omega \pi^+)$	< 5.2	$\times 10^{-6}$	CL=90%	-	DESIG=545
$a_1(1260)^+ a_1(1260)^0$	< 1.3	%	CL=90%	2336	DESIG=84
$b_1^0 \rho^+ \times B(b_1^0 \rightarrow \omega \pi^0)$	< 3.3	$\times 10^{-6}$	CL=90%	-	DESIG=546
Charged particle (h^\pm) modes					
$h^\pm = K^\pm \text{ or } \pi^\pm$					NODE=S041;CLUMP=I
$h^+ \pi^0$	(1.6 ± 0.7) $\times 10^{-5}$			2636	NODE=S041
ωh^+	(1.38 ± 0.27) $\times 10^{-5}$			2580	DESIG=249
$h^+ X^0$ (Familon)	< 4.9	$\times 10^{-5}$	CL=90%	-	DESIG=250
					DESIG=278

Baryon modes						NODE=S041;CLUMP=F
$p\bar{p}\pi^+$	(1.62 \pm 0.20) $\times 10^{-6}$			2439		DESIG=21
$p\bar{p}\pi^+$ nonresonant	< 5.3 $\times 10^{-5}$	CL=90%	2439			DESIG=232
$p\bar{p}K^+$	(5.9 \pm 0.5) $\times 10^{-6}$	S=1.5	2348			DESIG=313
$\Theta(1710)^{++}\bar{p} \times B(\Theta(1710)^{++} \rightarrow pK^+)$	[g] < 9.1 $\times 10^{-8}$	CL=90%	-			DESIG=400
$f_J(2220)K^+ \times B(f_J(2220) \rightarrow p\bar{p})$	[g] < 4.1 $\times 10^{-7}$	CL=90%	2135			DESIG=401
$p\bar{p}\Lambda(1520)$	< 1.5 $\times 10^{-6}$	CL=90%	2322			DESIG=397
$p\bar{p}K^+$ nonresonant	< 8.9 $\times 10^{-5}$	CL=90%	2348			DESIG=233
$p\bar{p}K^*(892)^+$	(3.6 \pm 0.8) $\times 10^{-6}$		2215			DESIG=353
$f_J(2220)K^{*+} \times B(f_J(2220) \rightarrow p\bar{p})$	< 7.7 $\times 10^{-7}$	CL=90%	2059			DESIG=497
$p\bar{\Lambda}$	< 3.2 $\times 10^{-7}$	CL=90%	2430			DESIG=23
$p\bar{\Lambda}\gamma$	(2.4 \pm 0.5) $\times 10^{-6}$		2430			DESIG=45
$p\bar{\Lambda}\pi^0$	(3.0 \pm 0.7) $\times 10^{-6}$		2402			DESIG=493
$p\bar{\Sigma}(1385)^0$	< 4.7 $\times 10^{-7}$	CL=90%	2362			DESIG=494
$\Delta^+\bar{\Lambda}$	< 8.2 $\times 10^{-7}$	CL=90%	-			DESIG=495
$p\bar{\Sigma}\gamma$	< 4.6 $\times 10^{-6}$	CL=90%	2413			DESIG=46
$p\bar{\Lambda}\pi^+\pi^-$	(5.9 \pm 1.1) $\times 10^{-6}$		2367			DESIG=24
$p\bar{\Lambda}\rho^0$	(4.8 \pm 0.9) $\times 10^{-6}$		2214			DESIG=548
$p\bar{\Lambda}f_2(1270)$	(2.0 \pm 0.8) $\times 10^{-6}$		2026			DESIG=549
$\Lambda\bar{\Lambda}\pi^+$	< 9.4 $\times 10^{-7}$	CL=90%	2358			DESIG=356
$\Lambda\bar{\Lambda}K^+$	(3.4 \pm 0.6) $\times 10^{-6}$		2251			DESIG=357
$\Lambda\bar{\Lambda}K^{*+}$	(2.2 \pm 1.2) $\times 10^{-6}$		2098			DESIG=539
$\bar{\Delta}^0 p$	< 1.38 $\times 10^{-6}$	CL=90%	2403			DESIG=64
$\Delta^{++}\bar{p}$	< 1.4 $\times 10^{-7}$	CL=90%	2403			DESIG=65
$D^+ p\bar{p}$	< 1.5 $\times 10^{-5}$	CL=90%	1860			DESIG=303
$D^*(2010)^+ p\bar{p}$	< 1.5 $\times 10^{-5}$	CL=90%	1786			DESIG=304
$\bar{D}^0 p\bar{p}\pi^+$	(3.72 \pm 0.27) $\times 10^{-4}$		1789			DESIG=607
$\bar{D}^{*0} p\bar{p}\pi^+$	(3.73 \pm 0.32) $\times 10^{-4}$		1709			DESIG=608
$D^- p\bar{p}\pi^+\pi^-$	(1.66 \pm 0.30) $\times 10^{-4}$		1705			DESIG=609
$D^{*-} p\bar{p}\pi^+\pi^-$	(1.86 \pm 0.25) $\times 10^{-4}$		1621			DESIG=610
$p\bar{\Lambda}^0\bar{D}^0$	(1.43 \pm 0.32) $\times 10^{-5}$		-			DESIG=577
$p\bar{\Lambda}^0\bar{D}^*(2007)^0$	< 5 $\times 10^{-5}$	CL=90%	-			DESIG=578
$\bar{\Lambda}_c^-\pi\pi^+$	(2.8 \pm 0.8) $\times 10^{-4}$		1980			DESIG=239
$\bar{\Lambda}_c^-\Delta(1232)^{++}$	< 1.9 $\times 10^{-5}$	CL=90%	1928			DESIG=469
$\bar{\Lambda}_c^-\Delta_X(1600)^{++}$	(5.9 \pm 1.9) $\times 10^{-5}$		-			DESIG=470
$\bar{\Lambda}_c^-\Delta_X(2420)^{++}$	(4.7 \pm 1.6) $\times 10^{-5}$		-			DESIG=471
$(\bar{\Lambda}_c^- p)_s\pi^+$	[h] (3.9 \pm 1.3) $\times 10^{-5}$		-			DESIG=472
$\bar{\Sigma}_c(2520)^0 p$	< 3 $\times 10^{-6}$	CL=90%	1904			DESIG=312
$\bar{\Sigma}_c(2800)^0 p$	(3.3 \pm 1.3) $\times 10^{-5}$		-			DESIG=529
$\bar{\Lambda}_c^- p\pi^+\pi^0$	(1.8 \pm 0.6) $\times 10^{-3}$		1935			DESIG=236
$\bar{\Lambda}_c^- p\pi^+\pi^+\pi^-$	(2.2 \pm 0.7) $\times 10^{-3}$		1880			DESIG=237
$\bar{\Lambda}_c^- p\pi^+\pi^+\pi^-\pi^0$	< 1.34 %	CL=90%	1823			DESIG=238
$\Lambda_c^+\bar{\Lambda}_c^- K^+$	(8.7 \pm 3.5) $\times 10^{-4}$		-			DESIG=463
$\bar{\Sigma}_c(2455)^0 p$	(3.7 \pm 1.3) $\times 10^{-5}$		1938			DESIG=311
$\bar{\Sigma}_c(2455)^0 p\pi^0$	(4.4 \pm 1.8) $\times 10^{-4}$		1896			DESIG=67
$\bar{\Sigma}_c(2455)^0 p\pi^-\pi^+$	(4.4 \pm 1.7) $\times 10^{-4}$		1845			DESIG=298
$\bar{\Sigma}_c(2455)^{--} p\pi^+\pi^+$	(3.0 \pm 0.8) $\times 10^{-4}$		1845			DESIG=299
$\bar{\Lambda}_c(2593)^-/\bar{\Lambda}_c(2625)^- p\pi^+$	< 1.9 $\times 10^{-4}$	CL=90%	-			DESIG=66
$\Xi_c^0\Lambda_c^+ \times B(\Xi_c^0 \rightarrow \Xi^+\pi^-)$	(3.0 \pm 1.1) $\times 10^{-5}$		1144			DESIG=465
$\Xi_c^0\Lambda_c^+ \times B(\Xi_c^0 \rightarrow \Lambda K^+\pi^-)$	(2.6 \pm 1.1) $\times 10^{-5}$	S=1.1	1144			DESIG=466

**Lepton Family number (*LF*) or Lepton number (*L*) or Baryon number (*B*)
violating modes, or/and $\Delta B = 1$ weak neutral current (*B1*) modes**

NODE=S041;CLUMP=G

$\pi^+ \ell^+ \ell^-$	<i>B1</i>	< 4.9	$\times 10^{-8}$	CL=90%	2638	DESIG=475
$\pi^+ e^+ e^-$	<i>B1</i>	< 8.0	$\times 10^{-8}$	CL=90%	2638	DESIG=85
$\pi^+ \mu^+ \mu^-$	<i>B1</i>	(2.4 \pm 0.6)	$\times 10^{-8}$		2634	DESIG=88
$\pi^+ \nu \bar{\nu}$	<i>B1</i>	< 1.0	$\times 10^{-4}$	CL=90%	2638	DESIG=404
$K^+ \ell^+ \ell^-$	<i>B1</i>	[a] (4.51 \pm 0.23)	$\times 10^{-7}$	S=1.1	2617	DESIG=345
$K^+ e^+ e^-$	<i>B1</i>	(5.5 \pm 0.7)	$\times 10^{-7}$		2617	DESIG=11
$K^+ \mu^+ \mu^-$	<i>B1</i>	(4.49 \pm 0.23)	$\times 10^{-7}$	S=1.1	2612	DESIG=10
$K^+ \bar{\nu} \nu$	<i>B1</i>	< 1.3	$\times 10^{-5}$	CL=90%	2617	DESIG=273
$\rho^+ \nu \bar{\nu}$	<i>B1</i>	< 1.5	$\times 10^{-4}$	CL=90%	2583	DESIG=489
$K^*(892)^+ \ell^+ \ell^-$	<i>B1</i>	[a] (1.29 \pm 0.21)	$\times 10^{-6}$		2564	DESIG=346
$K^*(892)^+ e^+ e^-$	<i>B1</i>	(1.55 \pm 0.40)	$\times 10^{-6}$		2564	DESIG=161
$K^*(892)^+ \mu^+ \mu^-$	<i>B1</i>	(1.12 \pm 0.15)	$\times 10^{-6}$		2560	DESIG=162
$K^*(892)^+ \nu \bar{\nu}$	<i>B1</i>	< 8	$\times 10^{-5}$	CL=90%	2564	DESIG=490
$\pi^+ e^+ \mu^-$	<i>LF</i>	< 6.4	$\times 10^{-3}$	CL=90%	2637	DESIG=86
$\pi^+ e^- \mu^+$	<i>LF</i>	< 6.4	$\times 10^{-3}$	CL=90%	2637	DESIG=87
$\pi^+ e^\pm \mu^\mp$	<i>LF</i>	< 1.7	$\times 10^{-7}$	CL=90%	2637	DESIG=476
$\pi^+ e^+ \tau^-$	<i>LF</i>	< 7.4	$\times 10^{-5}$	CL=90%	2338	DESIG=586
$\pi^+ e^- \tau^+$	<i>LF</i>	< 2.0	$\times 10^{-5}$	CL=90%	2338	DESIG=587
$\pi^+ e^\pm \tau^\mp$	<i>LF</i>	< 7.5	$\times 10^{-5}$	CL=90%	2338	DESIG=588
$\pi^+ \mu^+ \tau^-$	<i>LF</i>	< 6.2	$\times 10^{-5}$	CL=90%	2333	DESIG=589
$\pi^+ \mu^- \tau^+$	<i>LF</i>	< 4.5	$\times 10^{-5}$	CL=90%	2333	DESIG=590
$\pi^+ \mu^\pm \tau^\mp$	<i>LF</i>	< 7.2	$\times 10^{-5}$	CL=90%	2333	DESIG=591
$K^+ e^+ \mu^-$	<i>LF</i>	< 9.1	$\times 10^{-8}$	CL=90%	2615	DESIG=89
$K^+ e^- \mu^+$	<i>LF</i>	< 1.3	$\times 10^{-7}$	CL=90%	2615	DESIG=90
$K^+ e^\pm \mu^\mp$	<i>LF</i>	< 9.1	$\times 10^{-8}$	CL=90%	2615	DESIG=446
$K^+ e^+ \tau^-$	<i>LF</i>	< 4.3	$\times 10^{-5}$	CL=90%	2312	DESIG=592
$K^+ e^- \tau^+$	<i>LF</i>	< 1.5	$\times 10^{-5}$	CL=90%	2312	DESIG=593
$K^+ e^\pm \tau^\mp$	<i>LF</i>	< 3.0	$\times 10^{-5}$	CL=90%	2312	DESIG=594
$K^+ \mu^+ \tau^-$	<i>LF</i>	< 4.5	$\times 10^{-5}$	CL=90%	2298	DESIG=595
$K^+ \mu^- \tau^+$	<i>LF</i>	< 2.8	$\times 10^{-5}$	CL=90%	2298	DESIG=596
$K^+ \mu^\pm \tau^\mp$	<i>LF</i>	< 4.8	$\times 10^{-5}$	CL=90%	2298	DESIG=486
$K^*(892)^+ e^+ \mu^-$	<i>LF</i>	< 1.3	$\times 10^{-6}$	CL=90%	2563	DESIG=447
$K^*(892)^+ e^- \mu^+$	<i>LF</i>	< 9.9	$\times 10^{-7}$	CL=90%	2563	DESIG=448
$K^*(892)^+ e^\pm \mu^\mp$	<i>LF</i>	< 1.4	$\times 10^{-6}$	CL=90%	2563	DESIG=296
$\pi^- e^+ e^+$	<i>L</i>	< 2.3	$\times 10^{-8}$	CL=90%	2638	DESIG=91
$\pi^- \mu^+ \mu^+$	<i>L</i>	< 1.3	$\times 10^{-8}$	CL=95%	2634	DESIG=93
$\pi^- e^+ \mu^+$	<i>L</i>	< 1.3	$\times 10^{-6}$	CL=90%	2637	DESIG=92
$\rho^- e^+ e^+$	<i>L</i>	< 2.6	$\times 10^{-6}$	CL=90%	2583	DESIG=291
$\rho^- \mu^+ \mu^+$	<i>L</i>	< 5.0	$\times 10^{-6}$	CL=90%	2578	DESIG=295
$\rho^- e^+ \mu^+$	<i>L</i>	< 3.3	$\times 10^{-6}$	CL=90%	2582	DESIG=294
$K^- e^+ e^+$	<i>L</i>	< 3.0	$\times 10^{-8}$	CL=90%	2617	DESIG=94
$K^- \mu^+ \mu^+$	<i>L</i>	< 4.1	$\times 10^{-8}$	CL=90%	2612	DESIG=96
$K^- e^+ \mu^+$	<i>L</i>	< 2.0	$\times 10^{-6}$	CL=90%	2615	DESIG=95
$K^*(892)^- e^+ e^+$	<i>L</i>	< 2.8	$\times 10^{-6}$	CL=90%	2564	DESIG=290
$K^*(892)^- \mu^+ \mu^+$	<i>L</i>	< 8.3	$\times 10^{-6}$	CL=90%	2560	DESIG=292
$K^*(892)^- e^+ \mu^+$	<i>L</i>	< 4.4	$\times 10^{-6}$	CL=90%	2563	DESIG=293
$D^- e^+ e^+$	<i>L</i>	< 2.6	$\times 10^{-6}$	CL=90%	2309	DESIG=572
$D^- e^+ \mu^+$	<i>L</i>	< 1.8	$\times 10^{-6}$	CL=90%	2307	DESIG=573
$D^- \mu^+ \mu^+$	<i>L</i>	< 6.9	$\times 10^{-7}$	CL=95%	2303	DESIG=574
$D^{*-} \mu^+ \mu^+$	<i>L</i>	< 2.4	$\times 10^{-6}$	CL=95%	2251	DESIG=604
$D^- \mu^+ \mu^+$	<i>L</i>	< 5.8	$\times 10^{-7}$	CL=95%	2267	DESIG=605
$\overline{D}^0 \pi^- \mu^+ \mu^+$	<i>L</i>	< 1.5	$\times 10^{-6}$	CL=95%	2295	DESIG=606
$\Lambda^0 \mu^+$	<i>L,B</i>	< 6	$\times 10^{-8}$	CL=90%	—	DESIG=567
$\Lambda^0 e^+$	<i>L,B</i>	< 3.2	$\times 10^{-8}$	CL=90%	—	DESIG=568
$\overline{\Lambda}^0 \mu^+$	<i>L,B</i>	< 6	$\times 10^{-8}$	CL=90%	—	DESIG=569
$\overline{\Lambda}^0 e^+$	<i>L,B</i>	< 8	$\times 10^{-8}$	CL=90%	—	DESIG=570

B⁰

$$I(J^P) = \frac{1}{2}(0^-)$$

I, J, P need confirmation. Quantum numbers shown are quark-model predictions.

NODE=S042

Mass $m_{B^0} = 5279.58 \pm 0.17$ MeV
 $m_{B^0} - m_{B^\pm} = 0.32 \pm 0.06$ MeV
 Mean life $\tau_{B^0} = (1.519 \pm 0.007) \times 10^{-12}$ s
 $c\tau = 455.4 \mu\text{m}$
 $\tau_{B^+}/\tau_{B^0} = 1.079 \pm 0.007$ (direct measurements)

B^0 - \bar{B}^0 mixing parameters

$$\begin{aligned}\chi_d &= 0.1875 \pm 0.0020 \\ \Delta m_{B^0} &= m_{B_H^0} - m_{B_L^0} = (0.510 \pm 0.004) \times 10^{12} \hbar \text{ s}^{-1} \\ &\quad = (3.337 \pm 0.033) \times 10^{-10} \text{ MeV} \\ x_d &= \Delta m_{B^0}/\Gamma_{B^0} = 0.775 \pm 0.006 \\ \text{Re}(\lambda_{CP} / |\lambda_{CP}|) \text{ Re}(z) &= 0.01 \pm 0.05 \\ \Delta\Gamma \text{ Re}(z) &= -0.007 \pm 0.004 \\ \text{Re}(z) &= (2 \pm 5) \times 10^{-2} \\ \text{Im}(z) &= (-0.8 \pm 0.4) \times 10^{-2}\end{aligned}$$

CP violation parameters

$$\begin{aligned}\text{Re}(\epsilon_{B^0})/(1+|\epsilon_{B^0}|^2) &= (-0.2 \pm 0.7) \times 10^{-3} \\ A_{T/CP} &= 0.005 \pm 0.018 \\ A_{CP}(B^0 \rightarrow D^*(2010)^+ D^-) &= 0.037 \pm 0.034 \\ A_{CP}(B^0 \rightarrow [K^+ K^-]_D K^*(892)^0) &= -0.45 \pm 0.23 \\ A_{CP}(B^0 \rightarrow [K^+ \pi^-]_D K^*(892)^0) &= -0.08 \pm 0.08 \\ \mathbf{A}_{CP}(B^0 \rightarrow K^+ \pi^-) &= -0.087 \pm 0.008 \\ A_{CP}(B^0 \rightarrow \eta' K^*(892)^0) &= 0.02 \pm 0.23 \\ A_{CP}(B^0 \rightarrow \eta' K_0^*(1430)^0) &= -0.19 \pm 0.17 \\ A_{CP}(B^0 \rightarrow \eta' K_2^*(1430)^0) &= 0.14 \pm 0.18 \\ \mathbf{A}_{CP}(B^0 \rightarrow \eta K^*(892)^0) &= 0.19 \pm 0.05 \\ A_{CP}(B^0 \rightarrow \eta K_0^*(1430)^0) &= 0.06 \pm 0.13 \\ A_{CP}(B^0 \rightarrow \eta K_2^*(1430)^0) &= -0.07 \pm 0.19 \\ A_{CP}(B^0 \rightarrow b_1 K^+) &= -0.07 \pm 0.12 \\ A_{CP}(B^0 \rightarrow \omega K^{*0}) &= 0.45 \pm 0.25 \\ A_{CP}(B^0 \rightarrow \omega(K\pi)_0^{*0}) &= -0.07 \pm 0.09 \\ A_{CP}(B^0 \rightarrow \omega K_2^*(1430)^0) &= -0.37 \pm 0.17 \\ A_{CP}(B^0 \rightarrow K^+ \pi^- \pi^0) &= (0 \pm 6) \times 10^{-2} \\ A_{CP}(B^0 \rightarrow \rho^- K^+) &= 0.20 \pm 0.11 \\ A_{CP}(B^0 \rightarrow \rho(1450)^- K^+) &= -0.10 \pm 0.33 \\ A_{CP}(B^0 \rightarrow \rho(1700)^- K^+) &= -0.4 \pm 0.6 \\ A_{CP}(B^0 \rightarrow K^+ \pi^- \pi^0 \text{nonresonant}) &= 0.10 \pm 0.18 \\ A_{CP}(B^0 \rightarrow K^0 \pi^+ \pi^-) &= -0.01 \pm 0.05 \\ A_{CP}(B^0 \rightarrow K^*(892)^+ \pi^-) &= -0.22 \pm 0.06 \\ A_{CP}(B^0 \rightarrow (K\pi)_0^{*+} \pi^-) &= 0.09 \pm 0.07 \\ A_{CP}(B^0 \rightarrow (K\pi)_0^{*0} \pi^0) &= -0.15 \pm 0.11 \\ A_{CP}(B^0 \rightarrow K^{*0} \pi^0) &= -0.15 \pm 0.13 \\ A_{CP}(B^0 \rightarrow K^*(892)^0 \pi^+ \pi^-) &= 0.07 \pm 0.05 \\ A_{CP}(B^0 \rightarrow K^*(892)^0 \rho^0) &= -0.06 \pm 0.09 \\ A_{CP}(B^0 \rightarrow K^{*0} f_0(980)) &= 0.07 \pm 0.10 \\ A_{CP}(B^0 \rightarrow K^{*+} \rho^-) &= 0.21 \pm 0.15 \\ A_{CP}(B^0 \rightarrow K^*(892)^0 K^+ K^-) &= 0.01 \pm 0.05 \\ A_{CP}(B^0 \rightarrow a_1^- K^+) &= -0.16 \pm 0.12 \\ A_{CP}(B^0 \rightarrow K^0 K^0) &= -0.6 \pm 0.7 \\ A_{CP}(B^0 \rightarrow K^*(892)^0 \phi) &= 0.01 \pm 0.05 \\ A_{CP}(B^0 \rightarrow K^*(892)^0 K^- \pi^+) &= 0.2 \pm 0.4 \\ A_{CP}(B^0 \rightarrow \phi(K\pi)_0^{*0}) &= 0.20 \pm 0.15 \\ A_{CP}(B^0 \rightarrow \phi K_2^*(1430)^0) &= -0.08 \pm 0.13 \\ A_{CP}(B^0 \rightarrow K^*(892)^0 \gamma) &= -0.002 \pm 0.015 \\ A_{CP}(B^0 \rightarrow K_2^*(1430)^0 \gamma) &= -0.08 \pm 0.15\end{aligned}$$

```
NODE=S042M;DTYPE=M
NODE=S042DM;DTYPE=D
NODE=S042T;DTYPE=T;OUR EVAL;
NODE=S042CTA;DTYPE=C;OUR EVAL
NODE=S042DT1;DTYPE=y;OUR EVAL;
→ UNCHECKED ←
CLUMP=Y
NODE=S042CHD;DTYPE=Y;CLUMP=Y;
OUR EVAL;→ UNCHECKED ←
NODE=S042D;DTYPE=Y;CLUMP=Y;OUR
EVAL;→ UNCHECKED ←
NODE=S042D1;DTYPE=Y;CLUMP=Y;OUR
EVAL;→ UNCHECKED ←
NODE=S042DG;DTYPE=Y;CLUMP=Y;OUR
EVAL;→ UNCHECKED ←
NODE=S042RZ1;DTYPE=Y;CLUMP=Y
NODE=S042GRZ;DTYPE=Y;CLUMP=Y
NODE=S042RZ0;DTYPE=Y;CLUMP=Y
NODE=S042IZ1;DTYPE=Y;CLUMP=Y
CLUMP=E
NODE=S042EPS;DTYPE=a;CLUMP=E;
OUR EVAL;→ UNCHECKED ←
NODE=S042Y3;DTYPE=a;CLUMP=E
NODE=S042AC4;DTYPE=a;CLUMP=E
NODE=S042AD3;DTYPE=a;CLUMP=E
NODE=S042AD4;DTYPE=a;CLUMP=E
NODE=S042ACP;DTYPE=a;CLUMP=E
NODE=S042CP4;DTYPE=a;CLUMP=E
NODE=S042CT2;DTYPE=a;CLUMP=E
NODE=S042CT3;DTYPE=a;CLUMP=E
NODE=S042CP1;DTYPE=a;CLUMP=E
NODE=S042AD1;DTYPE=a;CLUMP=E
NODE=S042AD2;DTYPE=a;CLUMP=E
NODE=S042CQ2;DTYPE=a;CLUMP=E
NODE=S042CQ8;DTYPE=a;CLUMP=E
NODE=S042CR0;DTYPE=a;CLUMP=E
NODE=S042CR1;DTYPE=a;CLUMP=E
NODE=S042AC7;DTYPE=a;CLUMP=E
NODE=S042AC6;DTYPE=a;CLUMP=E
NODE=S042CT4;DTYPE=a;CLUMP=E
NODE=S042CT5;DTYPE=a;CLUMP=E
NODE=S042CQ5;DTYPE=a;CLUMP=E
NODE=S042CQ9;DTYPE=a;CLUMP=E
NODE=S042AC3;DTYPE=a;CLUMP=E
NODE=S042CQ6;DTYPE=a;CLUMP=E
NODE=S042CQ7;DTYPE=a;CLUMP=E
NODE=S042CQ4;DTYPE=a;CLUMP=E
NODE=S042CP6;DTYPE=a;CLUMP=E
NODE=S042AC9;DTYPE=a;CLUMP=E
NODE=S042AD0;DTYPE=a;CLUMP=E
NODE=S042CT6;DTYPE=a;CLUMP=E
NODE=S042CP7;DTYPE=a;CLUMP=E
NODE=S042CQ1;DTYPE=a;CLUMP=E
NODE=S042CP5;DTYPE=a;CLUMP=E
NODE=S042AC1;DTYPE=a;CLUMP=E
NODE=S042CP8;DTYPE=a;CLUMP=E
NODE=S042CP2;DTYPE=a;CLUMP=E
NODE=S042CP3;DTYPE=a;CLUMP=E
NODE=S042AKG;DTYPE=a;CLUMP=E
NODE=S042AC8;DTYPE=a;CLUMP=E
```

$A_{CP}(B^0 \rightarrow \rho^+ \pi^-) = 0.08 \pm 0.12$ ($S = 2.0$)
 $A_{CP}(B^0 \rightarrow \rho^- \pi^+) = -0.16 \pm 0.23$ ($S = 1.7$)
 $A_{CP}(B^0 \rightarrow a_1(1260)^{\pm} \pi^{\mp}) = -0.07 \pm 0.06$
 $A_{CP}(B^0 \rightarrow b_1^- \pi^+) = -0.05 \pm 0.10$
 $A_{CP}(B^0 \rightarrow p\bar{p} K^*(892)^0) = 0.05 \pm 0.12$
 $A_{CP}(B^0 \rightarrow p\bar{A} \pi^-) = 0.04 \pm 0.07$
 $A_{CP}(B^0 \rightarrow K^{*0} \ell^+ \ell^-) = -0.05 \pm 0.10$
 $A_{CP}(B^0 \rightarrow K^{*0} e^+ e^-) = -0.21 \pm 0.19$
 $A_{CP}(B^0 \rightarrow K^{*0} \mu^+ \mu^-) = -0.07 \pm 0.04$
 $C_{D^{*-} D^+}(B^0 \rightarrow D^*(2010)^- D^+) = -0.01 \pm 0.11$
 $S_{D^{*-} D^+}(B^0 \rightarrow D^*(2010)^- D^+) = -0.72 \pm 0.15$
 $C_{D^{*+} D^-}(B^0 \rightarrow D^*(2010)^+ D^-) = 0.00 \pm 0.13$ ($S = 1.3$)
 $S_{D^{*+} D^-}(B^0 \rightarrow D^*(2010)^+ D^-) = -0.73 \pm 0.14$
 $C_{D^{*+} D^{*-}}(B^0 \rightarrow D^{*+} D^{*-}) = 0.01 \pm 0.09$ ($S = 1.6$)
 $S_{D^{*+} D^{*-}}(B^0 \rightarrow D^{*+} D^{*-}) = -0.59 \pm 0.14$ ($S = 1.8$)
 $C_+(B^0 \rightarrow D^{*+} D^{*-}) = 0.00 \pm 0.10$ ($S = 1.6$)
 $S_+(B^0 \rightarrow D^{*+} D^{*-}) = -0.73 \pm 0.09$
 $C_-(B^0 \rightarrow D^{*+} D^{*-}) = 0.19 \pm 0.31$
 $S_-(B^0 \rightarrow D^{*+} D^{*-}) = 0.1 \pm 1.6$ ($S = 3.5$)
 $C(B^0 \rightarrow D^*(2010)^+ D^*(2010)^- K_S^0) = 0.01 \pm 0.29$
 $S(B^0 \rightarrow D^*(2010)^+ D^*(2010)^- K_S^0) = 0.1 \pm 0.4$
 $C_{D^+ D^-}(B^0 \rightarrow D^+ D^-) = -0.46 \pm 0.21$ ($S = 1.8$)
 $S_{D^+ D^-}(B^0 \rightarrow D^+ D^-) = -0.99^{+0.17}_{-0.14}$
 $C_{J/\psi(1S)\pi^0}(B^0 \rightarrow J/\psi(1S)\pi^0) = -0.13 \pm 0.13$
 $S_{J/\psi(1S)\pi^0}(B^0 \rightarrow J/\psi(1S)\pi^0) = -0.94 \pm 0.29$ ($S = 1.9$)
 $C_{D_{CP}^{(*)} h^0}(B^0 \rightarrow D_{CP}^{(*)} h^0) = -0.23 \pm 0.16$
 $S_{D_{CP}^{(*)} h^0}(B^0 \rightarrow D_{CP}^{(*)} h^0) = -0.56 \pm 0.24$
 $C_{K^0 \pi^0}(B^0 \rightarrow K^0 \pi^0) = 0.00 \pm 0.13$ ($S = 1.4$)
 $S_{K^0 \pi^0}(B^0 \rightarrow K^0 \pi^0) = 0.58 \pm 0.17$
 $C_{\eta'(958) K_S^0}(B^0 \rightarrow \eta'(958) K_S^0) = -0.04 \pm 0.20$ ($S = 2.5$)
 $S_{\eta'(958) K_S^0}(B^0 \rightarrow \eta'(958) K_S^0) = 0.43 \pm 0.17$ ($S = 1.5$)
 $C_{\eta' K^0}(B^0 \rightarrow \eta' K^0) = -0.05 \pm 0.05$
 $S_{\eta' K^0}(B^0 \rightarrow \eta' K^0) = 0.60 \pm 0.07$
 $C_{\omega K_S^0}(B^0 \rightarrow \omega K_S^0) = -0.30 \pm 0.28$ ($S = 1.6$)
 $S_{\omega K_S^0}(B^0 \rightarrow \omega K_S^0) = 0.43 \pm 0.24$
 $C(B^0 \rightarrow K_S^0 \pi^0 \pi^0) = 0.2 \pm 0.5$
 $S(B^0 \rightarrow K_S^0 \pi^0 \pi^0) = 0.7 \pm 0.7$
 $C_{\rho^0 K_S^0}(B^0 \rightarrow \rho^0 K_S^0) = -0.04 \pm 0.20$
 $S_{\rho^0 K_S^0}(B^0 \rightarrow \rho^0 K_S^0) = 0.50^{+0.17}_{-0.21}$
 $C_{f_0 K_S^0}(B^0 \rightarrow f_0(980) K_S^0) = 0.29 \pm 0.20$
 $S_{f_0 K_S^0}(B^0 \rightarrow f_0(980) K_S^0) = -0.50 \pm 0.16$
 $S_{f_2 K_S^0}(B^0 \rightarrow f_2(1270) K_S^0) = -0.5 \pm 0.5$
 $C_{f_2 K_S^0}(B^0 \rightarrow f_2(1270) K_S^0) = 0.3 \pm 0.4$
 $S_{f_x K_S^0}(B^0 \rightarrow f_x(1300) K_S^0) = -0.2 \pm 0.5$
 $C_{f_x K_S^0}(B^0 \rightarrow f_x(1300) K_S^0) = 0.13 \pm 0.35$
 $S_{K^0 \pi^+ \pi^-}(B^0 \rightarrow K^0 \pi^+ \pi^- \text{nonresonant}) = -0.01 \pm 0.33$
 $C_{K^0 \pi^+ \pi^-}(B^0 \rightarrow K^0 \pi^+ \pi^- \text{nonresonant}) = 0.01 \pm 0.26$
 $C_{K_S^0 K_S^0}(B^0 \rightarrow K_S^0 K_S^0) = 0.0 \pm 0.4$ ($S = 1.4$)

NODE=S042AC5;DTYPE=a;CLUMP=E
 NODE=S042AC0;DTYPE=a;CLUMP=E
 NODE=S042AAP;DTYPE=a;CLUMP=E
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 NODE=S042SX7;DTYPE=a;CLUMP=E
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 NODE=S042CF2;DTYPE=a;CLUMP=E
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 NODE=S042CF3;DTYPE=a;CLUMP=E
 NODE=S042SF4;DTYPE=a;CLUMP=E
 NODE=S042CF4;DTYPE=a;CLUMP=E
 NODE=S042CKS;DTYPE=a;CLUMP=E

$S_{K_S^0 K_S^0} (B^0 \rightarrow K_S^0 K_S^0) = -0.8 \pm 0.5$
 $C_{K^+ K^- K_S^0} (B^0 \rightarrow K^+ K^- K_S^0 \text{ nonresonant}) = 0.06 \pm 0.08$
 $S_{K^+ K^- K_S^0} (\mathbf{B^0 \rightarrow K^+ K^- K_S^0 \text{ nonresonant}}) = -0.66 \pm 0.11$
 $C_{K^+ K^- K_S^0} (B^0 \rightarrow K^+ K^- K_S^0 \text{ inclusive}) = 0.01 \pm 0.09$
 $S_{K^+ K^- K_S^0} (\mathbf{B^0 \rightarrow K^+ K^- K_S^0 \text{ inclusive}}) = -0.65 \pm 0.12$
 $C_{\phi K_S^0} (B^0 \rightarrow \phi K_S^0) = 0.01 \pm 0.14$
 $S_{\phi K_S^0} (B^0 \rightarrow \phi K_S^0) = 0.59 \pm 0.14$
 $C_{K_S K_S K_S} (B^0 \rightarrow K_S K_S K_S) = -0.23 \pm 0.14$
 $S_{K_S K_S K_S} (B^0 \rightarrow K_S K_S K_S) = -0.5 \pm 0.6 \quad (S = 3.0)$
 $C_{K_S^0 \pi^0 \gamma} (B^0 \rightarrow K_S^0 \pi^0 \gamma) = 0.36 \pm 0.33$
 $S_{K_S^0 \pi^0 \gamma} (B^0 \rightarrow K_S^0 \pi^0 \gamma) = -0.8 \pm 0.6$
 $C_{K^{*0} \gamma} (B^0 \rightarrow K^*(892)^0 \gamma) = -0.04 \pm 0.16 \quad (S = 1.2)$
 $S_{K^{*0} \gamma} (B^0 \rightarrow K^*(892)^0 \gamma) = -0.15 \pm 0.22$
 $C_{\eta K^0 \gamma} (B^0 \rightarrow \eta K^0 \gamma) = -0.3 \pm 0.4$
 $S_{\eta K^0 \gamma} (B^0 \rightarrow \eta K^0 \gamma) = -0.2 \pm 0.5$
 $C_{K^0 \phi \gamma} (B^0 \rightarrow K^0 \phi \gamma) = -0.3 \pm 0.6$
 $S_{K^0 \phi \gamma} (B^0 \rightarrow K^0 \phi \gamma) = 0.7^{+0.7}_{-1.1}$
 $C(B^0 \rightarrow K_S^0 \rho^0 \gamma) = -0.05 \pm 0.19$
 $S(B^0 \rightarrow K_S^0 \rho^0 \gamma) = 0.11 \pm 0.34$
 $C(B^0 \rightarrow \rho^0 \gamma) = 0.4 \pm 0.5$
 $S(B^0 \rightarrow \rho^0 \gamma) = -0.8 \pm 0.7$
 $C_{\pi \pi} (B^0 \rightarrow \pi^+ \pi^-) = -0.38 \pm 0.15 \quad (S = 2.4)$
 $S_{\pi \pi} (\mathbf{B^0 \rightarrow \pi^+ \pi^-}) = -0.65 \pm 0.07$
 $C_{\pi^0 \pi^0} (B^0 \rightarrow \pi^0 \pi^0) = -0.43 \pm 0.24$
 $C_{\rho \pi} (B^0 \rightarrow \rho^+ \pi^-) = 0.01 \pm 0.14 \quad (S = 1.9)$
 $S_{\rho \pi} (B^0 \rightarrow \rho^+ \pi^-) = 0.01 \pm 0.09$
 $\Delta C_{\rho \pi} (\mathbf{B^0 \rightarrow \rho^+ \pi^-}) = 0.37 \pm 0.08$
 $\Delta S_{\rho \pi} (B^0 \rightarrow \rho^+ \pi^-) = -0.05 \pm 0.10$
 $C_{\rho^0 \pi^0} (B^0 \rightarrow \rho^0 \pi^0) = 0.3 \pm 0.4$
 $S_{\rho^0 \pi^0} (B^0 \rightarrow \rho^0 \pi^0) = 0.1 \pm 0.4$
 $C_{a_1 \pi} (B^0 \rightarrow a_1(1260)^+ \pi^-) = -0.05 \pm 0.11$
 $S_{a_1 \pi} (B^0 \rightarrow a_1(1260)^+ \pi^-) = -0.2 \pm 0.4 \quad (S = 3.2)$
 $\Delta C_{a_1 \pi} (B^0 \rightarrow a_1(1260)^+ \pi^-) = 0.43 \pm 0.14 \quad (S = 1.3)$
 $\Delta S_{a_1 \pi} (B^0 \rightarrow a_1(1260)^+ \pi^-) = -0.11 \pm 0.12$
 $C(B^0 \rightarrow b_1^- K^+) = -0.22 \pm 0.24$
 $\Delta C(B^0 \rightarrow b_1^- \pi^+) = -1.04 \pm 0.24$
 $C_{\rho^0 \rho^0} (B^0 \rightarrow \rho^0 \rho^0) = 0.2 \pm 0.9$
 $S_{\rho^0 \rho^0} (B^0 \rightarrow \rho^0 \rho^0) = 0.3 \pm 0.7$
 $C_{\rho \rho} (B^0 \rightarrow \rho^+ \rho^-) = -0.05 \pm 0.13$
 $S_{\rho \rho} (B^0 \rightarrow \rho^+ \rho^-) = -0.06 \pm 0.17$
 $|\lambda| (B^0 \rightarrow J/\psi K^*(892)^0) < 0.25, \text{ CL} = 95\%$
 $\cos 2\beta (B^0 \rightarrow J/\psi K^*(892)^0) = 1.7^{+0.7}_{-0.9} \quad (S = 1.6)$
 $\cos 2\beta (B^0 \rightarrow [K_S^0 \pi^+ \pi^-]_{D^{(*)}} h^0) = 1.0^{+0.6}_{-0.7} \quad (S = 1.8)$
 $(S_+ + S_-)/2 (B^0 \rightarrow D^{*-} \pi^+) = -0.039 \pm 0.011$
 $(S_- - S_+)/2 (B^0 \rightarrow D^{*-} \pi^+) = -0.009 \pm 0.015$
 $(S_+ + S_-)/2 (B^0 \rightarrow D^- \pi^+) = -0.046 \pm 0.023$
 $(S_- - S_+)/2 (B^0 \rightarrow D^- \pi^+) = -0.022 \pm 0.021$
 $(S_+ + S_-)/2 (B^0 \rightarrow D^- \rho^+) = -0.024 \pm 0.032$
 $(S_- - S_+)/2 (B^0 \rightarrow D^- \rho^+) = -0.10 \pm 0.06$

NODE=S042SKS;DTYPE=a;CLUMP=E
 NODE=S042CX2;DTYPE=a;CLUMP=E
 NODE=S042SX2;DTYPE=a;CLUMP=E
 NODE=S042CKK;DTYPE=a;CLUMP=E
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 NODE=S042LD6;DTYPE=a;CLUMP=E
 NODE=S042DR+;DTYPE=a;CLUMP=E
 NODE=S042DR-;DTYPE=a;CLUMP=E

$$\begin{aligned}
C_{\eta_c K_S^0} (B^0 \rightarrow \eta_c K_S^0) &= 0.08 \pm 0.13 \\
S_{\eta_c K_S^0} (B^0 \rightarrow \eta_c K_S^0) &= 0.93 \pm 0.17 \\
C_{c\bar{c}K^{(*)0}} (B^0 \rightarrow c\bar{c}K^{(*)0}) &= (0.5 \pm 1.7) \times 10^{-2} \\
\sin(2\beta) &= 0.682 \pm 0.019 \\
C_{J/\psi(nS)K^0} (B^0 \rightarrow J/\psi(nS)K^0) &= (0.5 \pm 2.0) \times 10^{-2} \\
S_{J/\psi(nS)K^0} (B^0 \rightarrow J/\psi(nS)K^0) &= 0.676 \pm 0.021 \\
C_{J/\psi K^{*0}} (B^0 \rightarrow J/\psi K^{*0}) &= 0.03 \pm 0.10 \\
S_{J/\psi K^{*0}} (B^0 \rightarrow J/\psi K^{*0}) &= 0.60 \pm 0.25 \\
C_{\chi_{c0} K_S^0} (B^0 \rightarrow \chi_{c0} K_S^0) &= -0.3^{+0.5}_{-0.4} \\
S_{\chi_{c0} K_S^0} (B^0 \rightarrow \chi_{c0} K_S^0) &= -0.7 \pm 0.5 \\
C_{\chi_{c1} K_S^0} (B^0 \rightarrow \chi_{c1} K_S^0) &= 0.06 \pm 0.07 \\
S_{\chi_{c1} K_S^0} (B^0 \rightarrow \chi_{c1} K_S^0) &= 0.63 \pm 0.10 \\
\sin(2\beta_{\text{eff}})(B^0 \rightarrow \phi K^0) &= 0.22 \pm 0.30 \\
\sin(2\beta_{\text{eff}})(B^0 \rightarrow \phi K_0^*(1430)^0) &= 0.97^{+0.03}_{-0.52} \\
\sin(2\beta_{\text{eff}})(B^0 \rightarrow K^+ K^- K_S^0) &= 0.77^{+0.13}_{-0.12} \\
\sin(2\beta_{\text{eff}})(B^0 \rightarrow [K_S^0 \pi^+ \pi^-]_{D^{(*)}} h^0) &= 0.45 \pm 0.28 \\
|\lambda| (B^0 \rightarrow [K_S^0 \pi^+ \pi^-]_{D^{(*)}} h^0) &= 1.01 \pm 0.08 \\
|\sin(2\beta + \gamma)| &> 0.40, \text{ CL} = 90\% \\
2\beta + \gamma &= (83 \pm 60)^\circ \\
\gamma(B^0 \rightarrow D^0 K^{*0}) &= (162 \pm 60)^\circ \\
\alpha &= (90 \pm 5)^\circ
\end{aligned}$$

\bar{B}^0 modes are charge conjugates of the modes below. Reactions indicate the weak decay vertex and do not include mixing. Modes which do not identify the charge state of the B are listed in the B^\pm/B^0 ADMIXTURE section.

The branching fractions listed below assume 50% $B^0\bar{B}^0$ and 50% B^+B^- production at the $\Upsilon(4S)$. We have attempted to bring older measurements up to date by rescaling their assumed $\Upsilon(4S)$ production ratio to 50:50 and their assumed D , D_s , D^* , and ψ branching ratios to current values whenever this would affect our averages and best limits significantly.

Indentation is used to indicate a subchannel of a previous reaction. All resonant subchannels have been corrected for resonance branching fractions to the final state so the sum of the subchannel branching fractions can exceed that of the final state.

For inclusive branching fractions, e.g., $B \rightarrow D^\pm$ anything, the values usually are multiplicities, not branching fractions. They can be greater than one.

B^0 DECAY MODES	Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)	
$\ell^+ \nu_\ell$ anything	[a] (10.33 \pm 0.28) %	—	—	CLUMP=A;DESIG=94
$e^+ \nu_e X_c$	(10.1 \pm 0.4) %	—	—	DESIG=375
$D \ell^+ \nu_\ell$ anything	(9.2 \pm 0.8) %	—	—	DESIG=396
$D^- \ell^+ \nu_\ell$	[a] (2.18 \pm 0.12) %	2309	—	DESIG=37
$D^- \tau^+ \nu_\tau$	(1.02 \pm 0.22) %	1909	—	DESIG=416
$D^*(2010)^- \ell^+ \nu_\ell$	[a] (4.93 \pm 0.11) %	2257	—	DESIG=181
$D^*(2010)^- \tau^+ \nu_\tau$	(1.84 \pm 0.22) %	1837	—	DESIG=390
$\bar{D}^0 \pi^- \ell^+ \nu_\ell$	(4.3 \pm 0.6) $\times 10^{-3}$	2308	—	DESIG=311
$D_0^*(2400)^- \ell^+ \nu_\ell \times$ $B(D_0^{*-} \rightarrow \bar{D}^0 \pi^-)$	(3.0 \pm 1.2) $\times 10^{-3}$	S=1.8	—	DESIG=418
$D_2^*(2460)^- \ell^+ \nu_\ell \times$ $B(D_2^{*-} \rightarrow \bar{D}^0 \pi^-)$	(1.21 \pm 0.33) $\times 10^{-3}$	S=1.8	2065	DESIG=419

$\overline{D}^{(*)} n \pi \ell^+ \nu_\ell (n \geq 1)$	(2.3 ± 0.5) %	—	DESIG=423
$\overline{D}^{*0} \pi^- \ell^+ \nu_\ell$	(4.9 ± 0.8) × 10 ⁻³	2256	DESIG=312
$D_1(2420)^- \ell^+ \nu_\ell \times$ B($D_1^- \rightarrow \overline{D}^{*0} \pi^-$)	(2.80 ± 0.28) × 10 ⁻³	—	DESIG=420
$D'_1(2430)^- \ell^+ \nu_\ell \times$ B($D'_1^- \rightarrow \overline{D}^{*0} \pi^-$)	(3.1 ± 0.9) × 10 ⁻³	—	DESIG=421
$D_2^*(2460)^- \ell^+ \nu_\ell, D_2^{*-} \rightarrow$ $\overline{D}^{*0} \pi^-$	(6.8 ± 1.2) × 10 ⁻⁴	2065	DESIG=422
$\rho^- \ell^+ \nu_\ell$	[a] (2.34 ± 0.28) × 10 ⁻⁴	2583	DESIG=95
$\pi^- \ell^+ \nu_\ell$	[a] (1.44 ± 0.05) × 10 ⁻⁴	2638	DESIG=150
Inclusive modes			
K^\pm anything	(78 ± 8) %	—	NODE=S042;CLUMP=I
$D^0 X$	(8.1 ± 1.5) %	—	DESIG=151
$\overline{D}^0 X$	(47.4 ± 2.8) %	—	DESIG=290
$D^+ X$	< 3.9 %	CL=90%	DESIG=291
$D^- X$	(36.9 ± 3.3) %	—	DESIG=292
$D_s^+ X$	(10.3 ± 2.1) %	—	DESIG=293
$D_s^- X$	< 2.6 %	CL=90%	DESIG=294
$\Lambda_c^+ X$	< 3.1 %	CL=90%	DESIG=295
$\overline{\Lambda}_c^- X$	(5.0 ± 2.1) %	—	DESIG=296
$\bar{c} X$	(95 ± 5) %	—	DESIG=297
$c X$	(24.6 ± 3.1) %	—	DESIG=298
$\bar{c} c X$	(119 ± 6) %	—	DESIG=299
$D, D^*,$ or D_s modes			
$D^- \pi^+$	(2.68 ± 0.13) × 10 ⁻³	2306	NODE=S042;CLUMP=B
$D^- \rho^+$	(7.8 ± 1.3) × 10 ⁻³	2235	DESIG=30
$D^- K^0 \pi^+$	(4.9 ± 0.9) × 10 ⁻⁴	2259	DESIG=34
$D^- K^*(892)^+$	(4.5 ± 0.7) × 10 ⁻⁴	2211	DESIG=313
$D^- \omega \pi^+$	(2.8 ± 0.6) × 10 ⁻³	2204	DESIG=209
$D^- K^+$	(1.97 ± 0.21) × 10 ⁻⁴	2204	DESIG=205
$D^- K^+ \pi^+ \pi^-$	(3.8 ± 0.9) × 10 ⁻⁴	2279	DESIG=201
$D^- K^+ \overline{K}^0$	< 3.1 × 10 ⁻⁴	CL=90%	DESIG=508
$D^- K^+ K^*(892)^0$	(8.8 ± 1.9) × 10 ⁻⁴	2188	DESIG=216
$\overline{D}^0 \pi^+ \pi^-$	(8.4 ± 0.9) × 10 ⁻⁴	2070	DESIG=218
$D^*(2010)^- \pi^+$	(2.76 ± 0.13) × 10 ⁻³	2301	DESIG=1
$\overline{D}^0 K^+ K^-$	(4.7 ± 1.2) × 10 ⁻⁵	2255	DESIG=2
$D^- \pi^+ \pi^+ \pi^-$	(6.4 ± 0.7) × 10 ⁻³	2191	DESIG=507
$(D^- \pi^+ \pi^+ \pi^-)$ nonresonant	(3.9 ± 1.9) × 10 ⁻³	2287	DESIG=88
$D^- \pi^+ \rho^0$	(1.1 ± 1.0) × 10 ⁻³	2287	DESIG=89
$D^- a_1(1260)^+$	(6.0 ± 3.3) × 10 ⁻³	2206	DESIG=91
$D^*(2010)^- \pi^+ \pi^0$	(1.5 ± 0.5) %	2121	DESIG=93
$D^*(2010)^- \rho^+$	(6.8 ± 0.9) × 10 ⁻³	2247	DESIG=19
$D^*(2010)^- K^+$	(2.14 ± 0.16) × 10 ⁻⁴	2180	DESIG=3
$D^*(2010)^- K^0 \pi^+$	(3.0 ± 0.8) × 10 ⁻⁴	2226	DESIG=202
$D^*(2010)^- K^*(892)^+$	(3.3 ± 0.6) × 10 ⁻⁴	2205	DESIG=314
$D^*(2010)^- K^+ \overline{K}^0$	< 4.7 × 10 ⁻⁴	CL=90%	DESIG=210
$D^*(2010)^- K^+ K^*(892)^0$	(1.29 ± 0.33) × 10 ⁻³	2155	DESIG=217
$D^*(2010)^- \pi^+ \pi^+ \pi^-$	(7.0 ± 0.8) × 10 ⁻³	2007	DESIG=219
$(D^*(2010)^- \pi^+ \pi^+ \pi^-)$ non-	S=1.3	2235	DESIG=20
resonant	(0.0 ± 2.5) × 10 ⁻³	2235	DESIG=90
$D^*(2010)^- \pi^+ \rho^0$	(5.7 ± 3.2) × 10 ⁻³	2150	DESIG=92
$D^*(2010)^- a_1(1260)^+$	(1.30 ± 0.27) %	2061	DESIG=87
$D^*(2010)^- \pi^+ \pi^+ \pi^- \pi^0$	(1.76 ± 0.27) %	2218	DESIG=67
$D^{*-} 3\pi^+ 2\pi^-$	(4.7 ± 0.9) × 10 ⁻³	2195	DESIG=289
$\overline{D}^*(2010)^- \omega \pi^+$	(2.89 ± 0.30) × 10 ⁻³	2148	DESIG=204
$D_1(2430)^0 \omega \times$ B($D_1(2430)^0 \rightarrow D^{*-} \pi^+$)	(4.1 ± 1.6) × 10 ⁻⁴	1992	DESIG=361

$\overline{D}^{*-} \pi^+$	[e]	(2.1 ± 1.0) × 10 ⁻³	—	DESIG=357
$D_1(2420)^- \pi^+ \times B(D_1^- \rightarrow D^- \pi^+ \pi^-)$		(1.00 ^{+0.21} _{-0.25}) × 10 ⁻⁴	—	DESIG=331
$D_1(2420)^- \pi^+ \times B(D_1^- \rightarrow D^{*-} \pi^+ \pi^-)$	<	3.3 × 10 ⁻⁵ CL=90%	—	DESIG=332
$\overline{D}_2^*(2460)^- \pi^+ \times B(D_2^*(2460)^- \rightarrow D^0 \pi^-)$		(2.15 ± 0.35) × 10 ⁻⁴	2062	DESIG=124
$\overline{D}_0^*(2400)^- \pi^+ \times B(D_0^*(2400)^- \rightarrow D^0 \pi^-)$		(6.0 ± 3.0) × 10 ⁻⁵	2090	DESIG=385
$D_2^*(2460)^- \pi^+ \times B((D_2^*)^- \rightarrow D^{*-} \pi^+ \pi^-)$	<	2.4 × 10 ⁻⁵ CL=90%	—	DESIG=333
$\overline{D}_2^*(2460)^- \rho^+$	<	4.9 × 10 ⁻³ CL=90%	1975	DESIG=125
$D^0 \overline{D}^0$	<	4.3 × 10 ⁻⁵ CL=90%	1868	DESIG=350
$D^{*0} \overline{D}^0$	<	2.9 × 10 ⁻⁴ CL=90%	1794	DESIG=351
$D^- D^+$		(2.11 ± 0.18) × 10 ⁻⁴	1864	DESIG=184
$D^\pm D^{*\mp}$ (CP-averaged)		(6.1 ± 0.6) × 10 ⁻⁴	—	DESIG=511
$D^- D_s^+$		(7.2 ± 0.8) × 10 ⁻³	1812	DESIG=50
$D^*(2010)^- D_s^+$		(8.0 ± 1.1) × 10 ⁻³	1735	DESIG=49
$D^- D_s^{*+}$		(7.4 ± 1.6) × 10 ⁻³	1732	DESIG=103
$D^*(2010)^- D_s^{*+}$		(1.77 ± 0.14) %	1649	DESIG=66
$D_{s0}(2317)^- K^+ \times B(D_{s0}(2317)^- \rightarrow D_s^- \pi^0)$		(4.2 ± 1.4) × 10 ⁻⁵	2097	DESIG=323
$D_{s0}(2317)^- \pi^+ \times B(D_{s0}(2317)^- \rightarrow D_s^- \pi^0)$	<	2.5 × 10 ⁻⁵ CL=90%	2128	DESIG=324
$D_{sJ}(2457)^- K^+ \times B(D_{sJ}(2457)^- \rightarrow D_s^- \pi^0)$	<	9.4 × 10 ⁻⁶ CL=90%	—	DESIG=325
$D_{sJ}(2457)^- \pi^+ \times B(D_{sJ}(2457)^- \rightarrow D_s^- \pi^0)$	<	4.0 × 10 ⁻⁶ CL=90%	—	DESIG=326
$D_s^- D_s^+$	<	3.6 × 10 ⁻⁵ CL=90%	1759	DESIG=316
$D_s^{*-} D_s^+$	<	1.3 × 10 ⁻⁴ CL=90%	1674	DESIG=317
$D_s^{*-} D_s^{*+}$	<	2.4 × 10 ⁻⁴ CL=90%	1583	DESIG=318
$D_{s0}(2317)^+ D^- \times B(D_{s0}(2317)^+ \rightarrow D_s^+ \pi^0)$		(9.7 ^{+4.0} _{-3.3}) × 10 ⁻⁴ S=1.5	1602	DESIG=253
$D_{s0}(2317)^+ D^- \times B(D_{s0}(2317)^+ \rightarrow D_s^{*+} \gamma)$	<	9.5 × 10 ⁻⁴ CL=90%	—	DESIG=304
$D_{s0}(2317)^+ D^*(2010)^- \times B(D_{s0}(2317)^+ \rightarrow D_s^+ \pi^0)$		(1.5 ± 0.6) × 10 ⁻³	1509	DESIG=97
$D_{sJ}(2457)^+ D^-$		(3.5 ± 1.1) × 10 ⁻³	—	DESIG=254
$D_{sJ}(2457)^+ D^- \times B(D_{sJ}(2457)^+ \rightarrow D_s^+ \gamma)$		(6.5 ^{+1.7} _{-1.4}) × 10 ⁻⁴	—	DESIG=99
$D_{sJ}(2457)^+ D^- \times B(D_{sJ}(2457)^+ \rightarrow D_s^{*+} \gamma)$	<	6.0 × 10 ⁻⁴ CL=90%	—	DESIG=301
$D_{sJ}(2457)^+ D^- \times B(D_{sJ}(2457)^+ \rightarrow D_s^{*+} \gamma)$	<	2.0 × 10 ⁻⁴ CL=90%	—	DESIG=302
$D_{sJ}(2457)^+ D^- \times B(D_{sJ}(2457)^+ \rightarrow D_s^+ \pi^+ \pi^-)$	<	3.6 × 10 ⁻⁴ CL=90%	—	DESIG=303
$D_{sJ}(2457)^+ D^- \times B(D_{sJ}(2457)^+ \rightarrow D_s^+ \pi^0)$	<	3.6 × 10 ⁻⁴ CL=90%	—	DESIG=303
$D^*(2010)^- D_{sJ}(2457)^+$		(9.3 ± 2.2) × 10 ⁻³	—	DESIG=98
$D_{sJ}(2457)^+ D^*(2010)^- \times B(D_{sJ}(2457)^+ \rightarrow D_s^+ \gamma)$		(2.3 ^{+0.9} _{-0.7}) × 10 ⁻³	—	DESIG=100
$D^- D_{s1}(2536)^+ \times B(D_{s1}(2536)^+ \rightarrow D^{*0} K^+ + D^{*+} K^0)$		(2.8 ± 0.7) × 10 ⁻⁴	1444	DESIG=489

$D^- D_{s1}(2536)^+ \times$ $B(D_{s1}(2536)^+ \rightarrow D^{*0} K^+)$	(1.7 ± 0.6) × 10 ⁻⁴	1444	DESIG=271
$D^- D_{s1}(2536)^+ \times$ $B(D_{s1}(2536)^+ \rightarrow D^{*+} K^0)$	(2.6 ± 1.1) × 10 ⁻⁴	1444	DESIG=391
$D^*(2010)^- D_{s1}(2536)^+ \times$ $B(D_{s1}(2536)^+ \rightarrow D^{*0} K^+ + D^{*+} K^0)$	(5.0 ± 1.4) × 10 ⁻⁴	1336	DESIG=490
$D^*(2010)^- D_{s1}(2536)^+ \times$ $B(D_{s1}(2536)^+ \rightarrow D^{*0} K^+)$	(3.3 ± 1.1) × 10 ⁻⁴	1336	DESIG=272
$D^{*-} D_{s1}(2536)^+ \times$ $B(D_{s1}(2536)^+ \rightarrow D^{*+} K^0)$	(5.0 ± 1.7) × 10 ⁻⁴	1336	DESIG=392
$D^- D_{sJ}(2573)^+ \times$ $B(D_{sJ}(2573)^+ \rightarrow D^0 K^+)$	< 1 × 10 ⁻⁴ CL=90%	1414	DESIG=273
$D^*(2010)^- D_{sJ}(2573)^+ \times$ $B(D_{sJ}(2573)^+ \rightarrow D^0 K^+)$	< 2 × 10 ⁻⁴ CL=90%	1304	DESIG=274
$D_s^+ \pi^-$	(7.8 ± 1.4) × 10 ⁻⁷	2306	DESIG=488
$D_s^+ \pi^-$	(2.16 ± 0.26) × 10 ⁻⁵	2270	DESIG=51
$D_s^{*+} \pi^-$	(2.1 ± 0.4) × 10 ⁻⁵ S=1.4	2215	DESIG=108
$D_s^+ \rho^-$	< 2.4 × 10 ⁻⁵ CL=90%	2197	DESIG=110
$D_s^{*+} \rho^-$	(4.1 ± 1.3) × 10 ⁻⁵	2138	DESIG=111
$D_s^+ a_0^-$	< 1.9 × 10 ⁻⁵ CL=90%	—	DESIG=352
$D_s^{*+} a_0^-$	< 3.6 × 10 ⁻⁵ CL=90%	—	DESIG=353
$D_s^+ a_1(1260)^-$	< 2.1 × 10 ⁻³ CL=90%	2080	DESIG=112
$D_s^{*+} a_1(1260)^-$	< 1.7 × 10 ⁻³ CL=90%	2015	DESIG=113
$D_s^+ a_2^-$	< 1.9 × 10 ⁻⁴ CL=90%	—	DESIG=354
$D_s^{*+} a_2^-$	< 2.0 × 10 ⁻⁴ CL=90%	—	DESIG=355
$D_s^- K^+$	(2.2 ± 0.5) × 10 ⁻⁵ S=1.8	2242	DESIG=52
$D_s^{*-} K^+$	(2.19 ± 0.30) × 10 ⁻⁵	2185	DESIG=120
$D_s^- K^*(892)^+$	(3.5 ± 1.0) × 10 ⁻⁵	2172	DESIG=114
$D_s^{*-} K^*(892)^+$	(3.2 ± 1.5) × 10 ⁻⁵	2112	DESIG=115
$D_s^- \pi^+ K^0$	(1.10 ± 0.33) × 10 ⁻⁴	2222	DESIG=116
$D_s^{*-} \pi^+ K^0$	< 1.10 × 10 ⁻⁴ CL=90%	2164	DESIG=117
$D_s^- K^+ \pi^+ \pi^-$	(1.8 ± 0.5) × 10 ⁻⁴	2197	DESIG=512
$D_s^- \pi^+ K^*(892)^0$	< 3.0 × 10 ⁻³ CL=90%	2138	DESIG=118
$D_s^{*-} \pi^+ K^*(892)^0$	< 1.6 × 10 ⁻³ CL=90%	2076	DESIG=119
$\bar{D}^0 K^0$	(5.2 ± 0.7) × 10 ⁻⁵	2280	DESIG=242
$\bar{D}^0 K^+ \pi^-$	(8.8 ± 1.7) × 10 ⁻⁵	2261	DESIG=319
$\bar{D}^0 K^*(892)^0$	(4.2 ± 0.6) × 10 ⁻⁵	2213	DESIG=243
$D_2^*(2460)^- K^+ \times$ $B(D_2^*(2460)^- \rightarrow \bar{D}^0 \pi^-)$	(1.8 ± 0.5) × 10 ⁻⁵	2029	DESIG=320
$\bar{D}^0 K^+ \pi^-$ non-resonant	< 3.7 × 10 ⁻⁵ CL=90%	—	DESIG=321
$[K^+ K^-]_D K^*(892)^0$	(5.8 ± 1.8) × 10 ⁻⁵	—	DESIG=516
$\bar{D}^0 \pi^0$	(2.63 ± 0.14) × 10 ⁻⁴	2308	DESIG=128
$\bar{D}^0 \rho^0$	(3.2 ± 0.5) × 10 ⁻⁴	2237	DESIG=35
$\bar{D}^0 f_2$	(1.2 ± 0.4) × 10 ⁻⁴	—	DESIG=386
$\bar{D}^0 \eta$	(2.36 ± 0.32) × 10 ⁻⁴ S=2.5	2274	DESIG=129
$\bar{D}^0 \eta'$	(1.38 ± 0.16) × 10 ⁻⁴ S=1.3	2198	DESIG=130
$\bar{D}^0 \omega$	(2.53 ± 0.16) × 10 ⁻⁴	2235	DESIG=131
$D^0 \phi$	< 1.16 × 10 ⁻⁵ CL=90%	2183	DESIG=401
$D^0 K^+ \pi^-$	(5.3 ± 3.2) × 10 ⁻⁶	2261	DESIG=322
$D^0 K^*(892)^0$	< 1.1 × 10 ⁻⁵ CL=90%	2213	DESIG=246

$\bar{D}^{*0}\gamma$	< 2.5 $\times 10^{-5}$	CL=90%	2258	DESIG=187
$\bar{D}^*(2007)^0\pi^0$	(2.2 \pm 0.6) $\times 10^{-4}$	S=2.6	2256	DESIG=132
$\bar{D}^*(2007)^0\rho^0$	< 5.1 $\times 10^{-4}$	CL=90%	2182	DESIG=133
$\bar{D}^*(2007)^0\eta$	(2.3 \pm 0.6) $\times 10^{-4}$	S=2.8	2220	DESIG=134
$\bar{D}^*(2007)^0\eta'$	(1.40 \pm 0.22) $\times 10^{-4}$		2141	DESIG=135
$\bar{D}^*(2007)^0\pi^+\pi^-$	(6.2 \pm 2.2) $\times 10^{-4}$		2248	DESIG=239
$\bar{D}^*(2007)^0K^0$	(3.6 \pm 1.2) $\times 10^{-5}$		2227	DESIG=244
$\bar{D}^*(2007)^0K^*(892)^0$	< 6.9 $\times 10^{-5}$	CL=90%	2157	DESIG=245
$D^*(2007)^0K^*(892)^0$	< 4.0 $\times 10^{-5}$	CL=90%	2157	DESIG=247
$D^*(2007)^0\pi^+\pi^+\pi^-\pi^-$	(2.7 \pm 0.5) $\times 10^{-3}$		2219	DESIG=195
$D^*(2010)^+D^*(2010)^-$	(8.0 \pm 0.6) $\times 10^{-4}$		1711	DESIG=154
$\bar{D}^*(2007)^0\omega$	(3.6 \pm 1.1) $\times 10^{-4}$	S=3.1	2180	DESIG=136
$D^*(2010)^+D^-$	(6.1 \pm 1.5) $\times 10^{-4}$	S=1.6	1790	DESIG=155
$D^*(2007)^0\bar{D}^*(2007)^0$	< 9 $\times 10^{-5}$	CL=90%	1715	DESIG=185
$D^-D^0K^+$	(1.07 \pm 0.11) $\times 10^{-3}$		1574	DESIG=260
$D^-D^*(2007)^0K^+$	(3.5 \pm 0.4) $\times 10^{-3}$		1478	DESIG=261
$D^*(2010)^-D^0K^+$	(2.47 \pm 0.21) $\times 10^{-3}$		1479	DESIG=262
$D^*(2010)^-D^*(2007)^0K^+$	(1.06 \pm 0.09) %		1366	DESIG=263
$D^-D^+K^0$	(7.5 \pm 1.7) $\times 10^{-4}$		1568	DESIG=264
$D^*(2010)^-D^+K^0 + D^-D^*(2010)^+K^0$	(6.4 \pm 0.5) $\times 10^{-3}$		1473	DESIG=265
$D^*(2010)^-D^*(2010)^+K^0$	(8.1 \pm 0.7) $\times 10^{-3}$		1360	DESIG=266
$D^{*-}D_{s1}(2536)^+\times B(D_{s1}(2536)^+\rightarrow D^{*+}K^0)$	(8.0 \pm 2.4) $\times 10^{-4}$		1336	DESIG=366
$\bar{D}^0D^0K^0$	(2.7 \pm 1.1) $\times 10^{-4}$		1574	DESIG=267
$\bar{D}^0D^*(2007)^0K^0 + \bar{D}^*(2007)^0D^0K^0$	(1.1 \pm 0.5) $\times 10^{-3}$		1478	DESIG=268
$\bar{D}^*(2007)^0D^*(2007)^0K^0$	(2.4 \pm 0.9) $\times 10^{-3}$		1365	DESIG=269
$(\bar{D}+\bar{D}^*)(D+D^*)K$	(3.68 \pm 0.26) %		-	DESIG=270

Charmonium modes

$\eta_c K^0$	(7.9 \pm 1.2) $\times 10^{-4}$		1751	NODE=S042;CLUMP=C DESIG=189
$\eta_c K^*(892)^0$	(6.3 \pm 0.9) $\times 10^{-4}$		1646	DESIG=240
$\eta_c(2S)K^{*0}$	< 3.9 $\times 10^{-4}$	CL=90%	1157	DESIG=436
$h_c(1P)K^{*0}$	< 4 $\times 10^{-4}$	CL=90%	1253	DESIG=437
$J/\psi(1S)K^0$	(8.73 \pm 0.32) $\times 10^{-4}$		1683	DESIG=23
$J/\psi(1S)K^+\pi^-$	(1.2 \pm 0.6) $\times 10^{-3}$		1652	DESIG=4
$J/\psi(1S)K^*(892)^0$	(1.34 \pm 0.06) $\times 10^{-3}$		1571	DESIG=22
$J/\psi(1S)\eta K_S^0$	(8 \pm 4) $\times 10^{-5}$		1508	DESIG=278
$J/\psi(1S)\eta' K_S^0$	< 2.5 $\times 10^{-5}$	CL=90%	1271	DESIG=384
$J/\psi(1S)\phi K^0$	(9.4 \pm 2.6) $\times 10^{-5}$		1224	DESIG=194
$J/\psi(1S)\omega K^0$	(2.3 \pm 0.4) $\times 10^{-4}$		1386	DESIG=440
$X(3872)K^0 \times B(X \rightarrow J/\psi\omega)$	(6.0 \pm 3.2) $\times 10^{-6}$		1140	DESIG=486
$X(3915)K^0 \times B(X \rightarrow J/\psi\omega)$	(2.1 \pm 0.9) $\times 10^{-5}$		1102	DESIG=485
$J/\psi(1S)K(1270)^0$	(1.3 \pm 0.5) $\times 10^{-3}$		1390	DESIG=203
$J/\psi(1S)\pi^0$	(1.76 \pm 0.16) $\times 10^{-5}$	S=1.1	1728	DESIG=140
$J/\psi(1S)\eta$	(1.23 \pm 0.19) $\times 10^{-5}$		1672	DESIG=153
$J/\psi(1S)\pi^+\pi^-$	(4.03 \pm 0.18) $\times 10^{-5}$		1716	DESIG=241
$J/\psi(1S)\pi^+\pi^-$ nonresonant	< 1.2 $\times 10^{-5}$	CL=90%	1716	DESIG=387
$J/\psi(1S)f_0(500), f_0 \rightarrow \pi\pi$	(6.5 \pm 2.6) $\times 10^{-6}$		-	DESIG=513
$J/\psi(1S)f_2$	(4.2 \pm 0.7) $\times 10^{-6}$		-	DESIG=388
$J/\psi(1S)\rho^0$	(2.58 \pm 0.21) $\times 10^{-5}$		1612	DESIG=148
$J/\psi(1S)f_0(980), f_0 \rightarrow \pi^+\pi^-$	< 1.1 $\times 10^{-6}$	CL=90%	-	DESIG=514
$J/\psi(1S)\rho(1450)^0, \rho^0 \rightarrow \pi\pi$	(2.1 \pm 2.5) $\times 10^{-6}$		-	DESIG=515
$J/\psi(1S)\omega$	(2.3 \pm 0.6) $\times 10^{-5}$		1609	DESIG=149

$J/\psi(1S)\phi$	< 9.4	$\times 10^{-7}$	CL=90%	1520	DESIG=249
$J/\psi(1S)\eta'(958)$	< 7.4	$\times 10^{-6}$	CL=90%	1546	DESIG=250
$J/\psi(1S)K^0\pi^+\pi^-$	(1.0 \pm 0.4) $\times 10^{-3}$			1611	DESIG=211
$J/\psi(1S)K^0\rho^0$	(5.4 \pm 3.0) $\times 10^{-4}$			1390	DESIG=212
$J/\psi(1S)K^*(892)^+\pi^-$	(8 \pm 4) $\times 10^{-4}$			1514	DESIG=213
$J/\psi(1S)K^*(892)^0\pi^+\pi^-$	(6.6 \pm 2.2) $\times 10^{-4}$			1447	DESIG=214
$X(3872)^-K^+$	< 5	$\times 10^{-4}$	CL=90%	—	DESIG=330
$X(3872)^-K^+ \times$ B($X(3872)^- \rightarrow J/\psi(1S)\pi^-\pi^0$)	[f] < 4.2	$\times 10^{-6}$	CL=90%	—	DESIG=308
$X(3872)K^0 \times$ B($X \rightarrow J/\psi\pi^+\pi^-$)	(4.3 \pm 1.3) $\times 10^{-6}$			1140	DESIG=315
$X(3872)K^0 \times$ B($X \rightarrow J/\psi\gamma$)	< 2.4	$\times 10^{-6}$	CL=90%	1140	DESIG=451
$X(3872)K^*(892)^0 \times$ B($X \rightarrow J/\psi\gamma$)	< 2.8	$\times 10^{-6}$	CL=90%	940	DESIG=452
$X(3872)K^0 \times$ B($X \rightarrow \psi(2S)\gamma$)	< 6.62	$\times 10^{-6}$	CL=90%	1140	DESIG=453
$X(3872)K^*(892)^0 \times$ B($X \rightarrow \psi(2S)\gamma$)	< 4.4	$\times 10^{-6}$	CL=90%	940	DESIG=454
$X(3872)K^0 \times$ B($X \rightarrow D^0\bar{D}^0\pi^0$)	(1.7 \pm 0.8) $\times 10^{-4}$			1140	DESIG=374
$X(3872)K^0 \times$ B($X \rightarrow \bar{D}^{*0}D^0$)	(1.2 \pm 0.4) $\times 10^{-4}$			1140	DESIG=395
$X(4430)^\pm K^\mp \times$ B($X^\pm \rightarrow \psi(2S)\pi^\pm$)	(3.2 $^{+ 6.0}_{- 1.8} $) $\times 10^{-5}$			621	DESIG=438
$X(4430)^\pm K^\mp \times$ B($X^\pm \rightarrow J/\psi\pi^\pm$)	< 4	$\times 10^{-6}$	CL=95%	621	DESIG=450
$J/\psi(1S)p\bar{p}$	< 8.3	$\times 10^{-7}$	CL=90%	862	DESIG=248
$J/\psi(1S)\gamma$	< 1.6	$\times 10^{-6}$	CL=90%	1731	DESIG=279
$J/\psi(1S)\bar{D}^0$	< 1.3	$\times 10^{-5}$	CL=90%	877	DESIG=306
$\psi(2S)K^0$	(6.2 \pm 0.5) $\times 10^{-4}$			1283	DESIG=68
$\psi(3770)K^0 \times$ B($\psi \rightarrow \bar{D}^0D^0$)	< 1.23	$\times 10^{-4}$	CL=90%	1217	DESIG=393
$\psi(3770)K^0 \times$ B($\psi \rightarrow D^-D^+$)	< 1.88	$\times 10^{-4}$	CL=90%	1217	DESIG=394
$\psi(2S)K^+\pi^-$	(5.7 \pm 0.4) $\times 10^{-4}$			1238	DESIG=70
$\psi(2S)K^*(892)^0$	(6.1 \pm 0.5) $\times 10^{-4}$	S=1.1		1116	DESIG=69
$\chi_{c0}(1P)K^0$	(1.47 \pm 0.27) $\times 10^{-4}$			1477	DESIG=190
$\chi_{c0}K^*(892)^0$	(1.7 \pm 0.4) $\times 10^{-4}$			1341	DESIG=327
$\chi_{c2}K^0$	< 1.5	$\times 10^{-5}$	CL=90%	1378	DESIG=328
$\chi_{c2}K^*(892)^0$	(6.6 \pm 1.9) $\times 10^{-5}$			1228	DESIG=329
$\chi_{c1}(1P)\pi^0$	(1.12 \pm 0.28) $\times 10^{-5}$			1468	DESIG=444
$\chi_{c1}(1P)K^0$	(3.93 \pm 0.27) $\times 10^{-4}$			1411	DESIG=126
$\chi_{c1}(1P)K^-\pi^+$	(3.8 \pm 0.4) $\times 10^{-4}$			1371	DESIG=441
$\chi_{c1}(1P)K^*(892)^0$	(2.22 $^{+ 0.40}_{- 0.31} $) $\times 10^{-4}$	S=1.6		1265	DESIG=127
$X(4051)^+K^- \times$ B($X^+ \rightarrow \chi_{c1}\pi^+$)	(3.0 $^{+ 4.0}_{- 1.8} $) $\times 10^{-5}$			—	DESIG=442
$X(4248)^+K^- \times$ B($X^+ \rightarrow \chi_{c1}\pi^+$)	(4.0 $^{+ 20.0}_{- 1.0} $) $\times 10^{-5}$			—	DESIG=443

K or K* modes

$K^+\pi^-$	(1.96 \pm 0.05) $\times 10^{-5}$			NODE=S042;CLUMP=D
$K^0\pi^0$	(9.9 \pm 0.5) $\times 10^{-6}$			DESIG=10
$\eta'K^0$	(6.6 \pm 0.4) $\times 10^{-5}$			DESIG=144
$\eta'K^*(892)^0$	(3.1 \pm 0.9) $\times 10^{-6}$			DESIG=163
$\eta'K_0^*(1430)^0$	(6.3 \pm 1.6) $\times 10^{-6}$			DESIG=164
$\eta'K_2^*(1430)^0$	(1.37 \pm 0.32) $\times 10^{-5}$			DESIG=474
ηK^0	(1.23 $^{+ 0.27}_{- 0.24} $) $\times 10^{-6}$			DESIG=475
$\eta K^*(892)^0$	(1.59 \pm 0.10) $\times 10^{-5}$			DESIG=166
$\eta K_0^*(1430)^0$	(1.10 \pm 0.22) $\times 10^{-5}$			DESIG=343
$\eta K_2^*(1430)^0$	(9.6 \pm 2.1) $\times 10^{-6}$			DESIG=344

ωK^0	(5.0 ± 0.6) × 10 ⁻⁶	2557	DESIG=172
$a_0(980)^0 K^0 \times B(a_0(980)^0 \rightarrow \eta\pi^0)$	< 7.8 × 10 ⁻⁶ CL=90%	—	DESIG=288
$b_1^0 K^0 \times B(b_1^0 \rightarrow \omega\pi^0)$	< 7.8 × 10 ⁻⁶ CL=90%	—	DESIG=430
$a_0(980)^{\pm} K^{\mp} \times B(a_0(980)^{\pm} \rightarrow \eta\pi^{\pm})$	< 1.9 × 10 ⁻⁶ CL=90%	—	DESIG=287
$b_1^- K^+ \times B(b_1^- \rightarrow \omega\pi^-)$	(7.4 ± 1.4) × 10 ⁻⁶	—	DESIG=410
$b_1^0 K^{*0} \times B(b_1^0 \rightarrow \omega\pi^0)$	< 8.0 × 10 ⁻⁶ CL=90%	—	DESIG=465
$b_1^- K^{*+} \times B(b_1^- \rightarrow \omega\pi^-)$	< 5.0 × 10 ⁻⁶ CL=90%	—	DESIG=466
$a_0(1450)^{\pm} K^{\mp} \times B(a_0(1450)^{\pm} \rightarrow \eta\pi^{\pm})$	< 3.1 × 10 ⁻⁶ CL=90%	—	DESIG=378
$K_S^0 X^0$ (Familon)	< 5.3 × 10 ⁻⁵ CL=90%	—	DESIG=208
$\omega K^*(892)^0$	(2.0 ± 0.5) × 10 ⁻⁶	2503	DESIG=173
$\omega(K\pi)_0^{*0}$	(1.84 ± 0.25) × 10 ⁻⁵	—	DESIG=447
$\omega K_0^*(1430)^0$	(1.60 ± 0.34) × 10 ⁻⁵	2380	DESIG=448
$\omega K_2^*(1430)^0$	(1.01 ± 0.23) × 10 ⁻⁵	2380	DESIG=449
$\omega K^+ \pi^-$ nonresonant	(5.1 ± 1.0) × 10 ⁻⁶	2542	DESIG=446
$K^+ \pi^- \pi^0$	(3.78 ± 0.32) × 10 ⁻⁵	2609	DESIG=229
$K^+ \rho^-$	(7.0 ± 0.9) × 10 ⁻⁶	2559	DESIG=145
$K^+ \rho(1450)^-$	(2.4 ± 1.2) × 10 ⁻⁶	—	DESIG=424
$K^+ \rho(1700)^-$	(6 ± 7) × 10 ⁻⁷	—	DESIG=425
$(K^+ \pi^- \pi^0)$ non-resonant	(2.8 ± 0.6) × 10 ⁻⁶	—	DESIG=282
$(K\pi)_0^{*+} \pi^- \times B((K\pi)_0^{*+} \rightarrow K^+ \pi^0)$	(3.4 ± 0.5) × 10 ⁻⁵	—	DESIG=426
$(K\pi)_0^{*0} \pi^0 \times B((K\pi)_0^{*0} \rightarrow K^+ \pi^-)$	(8.6 ± 1.7) × 10 ⁻⁶	—	DESIG=427
$K_2^*(1430)^0 \pi^0$	< 4.0 × 10 ⁻⁶ CL=90%	2445	DESIG=428
$K^*(1680)^0 \pi^0$	< 7.5 × 10 ⁻⁶ CL=90%	2358	DESIG=429
$K_x^{*0} \pi^0$	[i] (6.1 ± 1.6) × 10 ⁻⁶	—	DESIG=280
$K^0 \pi^+ \pi^-$ charmless	(4.96 ± 0.20) × 10 ⁻⁵	2609	DESIG=80
$K^0 \pi^+ \pi^-$ non-resonant	(1.47 ± 0.40) × 10 ⁻⁵ S=2.1	—	DESIG=367
$K^0 \rho^0$	(4.7 ± 0.6) × 10 ⁻⁶	2558	DESIG=12
$K^*(892)^+ \pi^-$	(8.4 ± 0.8) × 10 ⁻⁶	2563	DESIG=11
$K_0^*(1430)^+ \pi^-$	(3.3 ± 0.7) × 10 ⁻⁵ S=2.0	—	DESIG=368
$K_x^{*+} \pi^-$	[i] (5.1 ± 1.6) × 10 ⁻⁶	—	DESIG=281
$K^*(1410)^+ \pi^- \times B(K^*(1410)^+ \rightarrow K^0 \pi^+)$	< 3.8 × 10 ⁻⁶ CL=90%	—	DESIG=369
$f_0(980) K^0 \times B(f_0(980) \rightarrow \pi^+ \pi^-)$	(7.0 ± 0.9) × 10 ⁻⁶	2522	DESIG=372
$f_2(1270) K^0$	(2.7 ± 1.3) × 10 ⁻⁶	2459	DESIG=373
$f_x(1300) K^0 \times B(f_x \rightarrow \pi^+ \pi^-)$	(1.8 ± 0.7) × 10 ⁻⁶	—	DESIG=473
$K^*(892)^0 \pi^0$	(3.3 ± 0.6) × 10 ⁻⁶	2563	DESIG=146
$K_2^*(1430)^+ \pi^-$	< 6 × 10 ⁻⁶ CL=90%	2445	DESIG=72
$K^*(1680)^+ \pi^-$	< 1.0 × 10 ⁻⁵ CL=90%	2358	DESIG=370
$K^+ \pi^- \pi^+ \pi^-$	[j] < 2.3 × 10 ⁻⁴ CL=90%	2600	DESIG=143
$\rho^0 K^+ \pi^-$	(2.8 ± 0.7) × 10 ⁻⁶	2543	DESIG=461
$f_0(980) K^+ \pi^-$, $f_0 \rightarrow \pi\pi$	(1.4 ± 0.5) × 10 ⁻⁶	2506	DESIG=462
$K^+ \pi^- \pi^+ \pi^-$ nonresonant	< 2.1 × 10 ⁻⁶ CL=90%	2600	DESIG=464
$K^*(892)^0 \pi^+ \pi^-$	(5.5 ± 0.5) × 10 ⁻⁵	2557	DESIG=84
$K^*(892)^0 \rho^0$	(3.9 ± 1.3) × 10 ⁻⁶ S=1.9	2504	DESIG=15
$K^*(892)^0 f_0(980)$, $f_0 \rightarrow \pi\pi$	(3.9 ± 2.1) × 10 ⁻⁶ S=3.9	2466	DESIG=45
$K_1(1270)^+ \pi^-$	< 3.0 × 10 ⁻⁵ CL=90%	2484	DESIG=472
$K_1(1400)^+ \pi^-$	< 2.7 × 10 ⁻⁵ CL=90%	2451	DESIG=86
$a_1(1260)^- K^+$	[j] (1.6 ± 0.4) × 10 ⁻⁵	2471	DESIG=142
$K^*(892)^+ \rho^-$	(1.03 ± 0.26) × 10 ⁻⁵	2504	DESIG=342

$K_0^*(1430)^+ \rho^-$	(2.8 ± 1.2) × 10 ⁻⁵	—	DESIG=501
$K_1(1400)^0 \rho^0$	< 3.0 × 10 ⁻³ CL=90%	2388	DESIG=73
$K_0^*(1430)^0 \rho^0$	(2.7 ± 0.6) × 10 ⁻⁵	2381	DESIG=498
$K_0^*(1430)^0 f_0(980)$, $f_0 \rightarrow \pi\pi$	(2.7 ± 0.9) × 10 ⁻⁶	—	DESIG=499
$K_2^*(1430)^0 f_0(980)$, $f_0 \rightarrow \pi\pi$	(8.6 ± 2.0) × 10 ⁻⁶	—	DESIG=500
$K^+ K^-$	(1.3 ± 0.5) × 10 ⁻⁷	2593	DESIG=106
$K^0 \bar{K}^0$	(1.21 ± 0.16) × 10 ⁻⁶	2592	DESIG=162
$K^0 K^- \pi^+$	(6.4 ± 1.2) × 10 ⁻⁶	2578	DESIG=228
$\bar{K}^{*0} K^0 + K^{*0} \bar{K}^0$	< 1.9 × 10 ⁻⁶	—	DESIG=341
$K^+ K^- \pi^0$	< 1.9 × 10 ⁻⁵ CL=90%	2579	DESIG=230
$K_S^0 K_S^0 \pi^0$	< 9 × 10 ⁻⁷ CL=90%	2578	DESIG=458
$K_S^0 K_S^0 \eta$	< 1.0 × 10 ⁻⁶ CL=90%	2515	DESIG=459
$K_S^0 K_S^0 \eta'$	< 2.0 × 10 ⁻⁶ CL=90%	2452	DESIG=460
$K^0 K^+ K^-$	(2.66 ± 0.12) × 10 ⁻⁵	2522	DESIG=81
$K^0 \phi$	(7.3 ± 0.7) × 10 ⁻⁶	2516	DESIG=13
$f_0(980) K^0$, $f_0 \rightarrow K^+ K^-$	(7.0 ± 3.5) × 10 ⁻⁶	—	DESIG=502
$f_0(1500) K^0$	(1.3 ± 0.7) × 10 ⁻⁵	2398	DESIG=503
$f'_2(1525)^0 K^0$	(3 ± 5) × 10 ⁻⁷	—	DESIG=504
$f_0(1710) K^0$, $f_0 \rightarrow K^+ K^-$	(4.4 ± 0.9) × 10 ⁻⁶	—	DESIG=505
$K^0 K^+ K^-$ nonresonant	(3.3 ± 1.0) × 10 ⁻⁵	2522	DESIG=506
$K_S^0 K_S^0 K_S^0$	(6.0 ± 0.5) × 10 ⁻⁶	S=1.1 2521	DESIG=255
$f_0(980) K^0$, $f_0 \rightarrow K_S^0 K_S^0$	(2.7 ± 1.8) × 10 ⁻⁶	—	DESIG=494
$f_0(1710) K^0$, $f_0 \rightarrow K_S^0 K_S^0$	(5.0 ± 5.0) × 10 ⁻⁷	—	DESIG=495
$f_0(2010) K^0$, $f_0 \rightarrow K_S^0 K_S^0$	(5 ± 6) × 10 ⁻⁷	—	DESIG=496
$K_S^0 K_S^0 K_S^0$ nonresonant	(1.33 ± 0.31) × 10 ⁻⁵	2521	DESIG=497
$K_S^0 K_S^0 K_L^0$	< 1.6 × 10 ⁻⁵ CL=90%	2521	DESIG=339
$K^*(892)^0 K^+ K^-$	(2.75 ± 0.26) × 10 ⁻⁵	2467	DESIG=85
$K^*(892)^0 \phi$	(9.8 ± 0.6) × 10 ⁻⁶	2460	DESIG=14
$K^+ K^- \pi^+ \pi^-$ nonresonant	< 7.17 × 10 ⁻⁵ CL=90%	2559	DESIG=476
$K^*(892)^0 K^- \pi^+$	(4.5 ± 1.3) × 10 ⁻⁶	2524	DESIG=402
$K^*(892)^0 \bar{K}^*(892)^0$	(8 ± 5) × 10 ⁻⁷ S=2.2	2485	DESIG=188
$K^+ K^+ \pi^- \pi^-$ nonresonant	< 6.0 × 10 ⁻⁶ CL=90%	2559	DESIG=480
$K^*(892)^0 K^+ \pi^-$	< 2.2 × 10 ⁻⁶ CL=90%	2524	DESIG=403
$K^*(892)^0 K^*(892)^0$	< 2 × 10 ⁻⁷ CL=90%	2485	DESIG=206
$K^*(892)^+ K^*(892)^-$	< 2.0 × 10 ⁻⁶ CL=90%	2485	DESIG=207
$K_1(1400)^0 \phi$	< 5.0 × 10 ⁻³ CL=90%	2339	DESIG=75
$\phi(K\pi)_0^{*0}$	(4.3 ± 0.7) × 10 ⁻⁶	—	DESIG=346
$\phi(K\pi)_0^{*0}$ ($1.60 < m_{K\pi} < 2.15$) [k]	< 1.7 × 10 ⁻⁶ CL=90%	—	DESIG=397
$K_0^*(1430)^0 K^- \pi^+$	< 3.18 × 10 ⁻⁵ CL=90%	2403	DESIG=477
$K_0^*(1430)^0 \bar{K}^*(892)^0$	< 3.3 × 10 ⁻⁶ CL=90%	2360	DESIG=478
$K_0^*(1430)^0 \bar{K}_0^*(1430)^0$	< 8.4 × 10 ⁻⁶ CL=90%	2222	DESIG=479
$K_0^*(1430)^0 \phi$	(3.9 ± 0.8) × 10 ⁻⁶	2333	DESIG=305
$K_0^*(1430)^0 K^*(892)^0$	< 1.7 × 10 ⁻⁶ CL=90%	2360	DESIG=481
$K_0^*(1430)^0 K_0^*(1430)^0$	< 4.7 × 10 ⁻⁶ CL=90%	2222	DESIG=482
$K^*(1680)^0 \phi$	< 3.5 × 10 ⁻⁶ CL=90%	2238	DESIG=398
$K^*(1780)^0 \phi$	< 2.7 × 10 ⁻⁶ CL=90%	—	DESIG=399
$K^*(2045)^0 \phi$	< 1.53 × 10 ⁻⁵ CL=90%	—	DESIG=400
$K_2^*(1430)^0 \rho^0$	< 1.1 × 10 ⁻³ CL=90%	2381	DESIG=74
$K_2^*(1430)^0 \phi$	(7.5 ± 1.0) × 10 ⁻⁶	2333	DESIG=76
$K^0 \phi \phi$	(4.5 ± 0.9) × 10 ⁻⁶	2305	DESIG=345
$\eta' \eta' K^0$	< 3.1 × 10 ⁻⁵ CL=90%	2337	DESIG=338
$\eta K^0 \gamma$	(7.6 ± 1.8) × 10 ⁻⁶	2587	DESIG=309
$\eta' K^0 \gamma$	< 6.4 × 10 ⁻⁶ CL=90%	2528	DESIG=337
$K^0 \phi \gamma$	(2.7 ± 0.7) × 10 ⁻⁶	2516	DESIG=283

$K^+ \pi^- \gamma$	(4.6 ± 1.4) × 10 ⁻⁶	2615	DESIG=231
$K^*(892)^0 \gamma$	(4.33 ± 0.15) × 10 ⁻⁵	2564	DESIG=16
$K^*(1410) \gamma$	< 1.3 × 10 ⁻⁴ CL=90%	2451	DESIG=233
$K^+ \pi^- \gamma$ nonresonant	< 2.6 × 10 ⁻⁶ CL=90%	2615	DESIG=234
$K^*(892)^0 X(214) \times B(X \rightarrow \mu^+ \mu^-)$	[I] < 2.26 × 10 ⁻⁸ CL=90% —		DESIG=483
$K^0 \pi^+ \pi^- \gamma$	(1.95 ± 0.22) × 10 ⁻⁵	2609	DESIG=310
$K^+ \pi^- \pi^0 \gamma$	(4.1 ± 0.4) × 10 ⁻⁵	2609	DESIG=376
$K_1(1270)^0 \gamma$	< 5.8 × 10 ⁻⁵ CL=90%	2486	DESIG=38
$K_1(1400)^0 \gamma$	< 1.2 × 10 ⁻⁵ CL=90%	2453	DESIG=39
$K_2^*(1430)^0 \gamma$	(1.24 ± 0.24) × 10 ⁻⁵	2447	DESIG=40
$K^*(1680)^0 \gamma$	< 2.0 × 10 ⁻³ CL=90%	2361	DESIG=41
$K_3^*(1780)^0 \gamma$	< 8.3 × 10 ⁻⁵ CL=90%	2341	DESIG=42
$K_4^*(2045)^0 \gamma$	< 4.3 × 10 ⁻³ CL=90%	2244	DESIG=43
Light unflavored meson modes			
$\rho^0 \gamma$	(8.6 ± 1.5) × 10 ⁻⁷	2583	NODE=S042;CLUMP=E
$\rho^0 X(214) \times B(X \rightarrow \mu^+ \mu^-)$	[I] < 1.73 × 10 ⁻⁸ CL=90% —		DESIG=484
$\omega \gamma$	(4.4 ± 1.8) × 10 ⁻⁷	2582	DESIG=192
$\phi \gamma$	< 8.5 × 10 ⁻⁷ CL=90%	2541	DESIG=193
$\pi^+ \pi^-$	(5.12 ± 0.19) × 10 ⁻⁶	2636	DESIG=5
$\pi^0 \pi^0$	(1.91 ± 0.22) × 10 ⁻⁶	2636	DESIG=137
$\eta \pi^0$	< 1.5 × 10 ⁻⁶ CL=90%	2610	DESIG=60
$\eta \eta$	< 1.0 × 10 ⁻⁶ CL=90%	2582	DESIG=139
$\eta' \pi^0$	(1.2 ± 0.6) × 10 ⁻⁶ S=1.7	2551	DESIG=167
$\eta' \eta'$	< 1.7 × 10 ⁻⁶ CL=90%	2460	DESIG=168
$\eta' \eta$	< 1.2 × 10 ⁻⁶ CL=90%	2523	DESIG=169
$\eta' \rho^0$	< 1.3 × 10 ⁻⁶ CL=90%	2492	DESIG=170
$\eta' f_0(980) \times B(f_0(980) \rightarrow \pi^+ \pi^-)$	< 9 × 10 ⁻⁷ CL=90%	2454	DESIG=347
$\eta \rho^0$	< 1.5 × 10 ⁻⁶ CL=90%	2553	DESIG=171
$\eta f_0(980) \times B(f_0(980) \rightarrow \pi^+ \pi^-)$	< 4 × 10 ⁻⁷ CL=90%	2516	DESIG=379
$\omega \eta$	(9.4 ± 4.0) × 10 ⁻⁷	2552	DESIG=174
$\omega \eta'$	(1.0 ± 0.5) × 10 ⁻⁶	2491	DESIG=175
$\omega \rho^0$	< 1.6 × 10 ⁻⁶ CL=90%	2522	DESIG=176
$\omega f_0(980) \times B(f_0(980) \rightarrow \pi^+ \pi^-)$	< 1.5 × 10 ⁻⁶ CL=90%	2485	DESIG=340
$\omega \omega$	< 4.0 × 10 ⁻⁶ CL=90%	2521	DESIG=177
$\phi \pi^0$	< 1.5 × 10 ⁻⁷ CL=90%	2540	DESIG=178
$\phi \eta$	< 5 × 10 ⁻⁷ CL=90%	2511	DESIG=179
$\phi \eta'$	< 5 × 10 ⁻⁷ CL=90%	2448	DESIG=180
$\phi \rho^0$	< 3.3 × 10 ⁻⁷ CL=90%	2480	DESIG=182
$\phi f_0(980) \times B(f_0 \rightarrow \pi^+ \pi^-)$	< 3.8 × 10 ⁻⁷ CL=90%	2441	DESIG=434
$\phi \omega$	< 1.2 × 10 ⁻⁶ CL=90%	2479	DESIG=183
$\phi \phi$	< 2 × 10 ⁻⁷ CL=90%	2435	DESIG=147
$a_0(980)^\pm \pi^\mp \times B(a_0(980)^\pm \rightarrow \eta \pi^\pm)$	< 3.1 × 10 ⁻⁶ CL=90% —		DESIG=286
$a_0(1450)^\pm \pi^\mp \times B(a_0(1450)^\pm \rightarrow \eta \pi^\pm)$	< 2.3 × 10 ⁻⁶ CL=90% —		DESIG=377
$\pi^+ \pi^- \pi^0$	< 7.2 × 10 ⁻⁴ CL=90%	2631	DESIG=53
$\rho^0 \pi^0$	(2.0 ± 0.5) × 10 ⁻⁶	2581	DESIG=54
$\rho^\mp \pi^\pm$	[n] (2.30 ± 0.23) × 10 ⁻⁵	2581	DESIG=24
$\pi^+ \pi^- \pi^+ \pi^-$	< 1.93 × 10 ⁻⁵ CL=90%	2621	DESIG=55
$\rho^0 \pi^+ \pi^-$	< 8.8 × 10 ⁻⁶ CL=90%	2575	DESIG=432
$\rho^0 \rho^0$	(7.3 ± 2.8) × 10 ⁻⁷	2523	DESIG=26

$f_0(980)\pi^+\pi^-$	<	3.8	$\times 10^{-6}$	CL=90%	2539	DESIG=433
$\rho^0 f_0(980) \times \text{B}(f_0(980) \rightarrow \pi^+ \pi^-)$	<	3	$\times 10^{-7}$	CL=90%	2486	DESIG=348
$f_0(980)f_0(980) \times \text{B}^2(f_0(980) \rightarrow \pi^+ \pi^-)$	<	1	$\times 10^{-7}$	CL=90%	2447	DESIG=349
$f_0(980)f_0(980) \times \text{B}(f_0 \rightarrow \pi^+ \pi^-) \times \text{B}(f_0 \rightarrow K^+ K^-)$	<	2.3	$\times 10^{-7}$	CL=90%	2447	DESIG=435
$a_1(1260)^{\mp}\pi^{\pm}$	[n]	(2.6 ± 0.5)	$\times 10^{-5}$	S=1.9	2494	DESIG=27
$a_2(1320)^{\mp}\pi^{\pm}$	[n]	< 6.3	$\times 10^{-6}$	CL=90%	2473	DESIG=28
$\pi^+\pi^-\pi^0\pi^0$	<	3.1	$\times 10^{-3}$	CL=90%	2622	DESIG=56
$\rho^+\rho^-$		(2.42 ± 0.31)	$\times 10^{-5}$		2523	DESIG=57
$a_1(1260)^0\pi^0$	<	1.1	$\times 10^{-3}$	CL=90%	2495	DESIG=58
$\omega\pi^0$	<	5	$\times 10^{-7}$	CL=90%	2580	DESIG=59
$\pi^+\pi^+\pi^-\pi^-\pi^0$	<	9.0	$\times 10^{-3}$	CL=90%	2609	DESIG=61
$a_1(1260)^+\rho^-$	<	6.1	$\times 10^{-5}$	CL=90%	2433	DESIG=62
$a_1(1260)^0\rho^0$	<	2.4	$\times 10^{-3}$	CL=90%	2433	DESIG=63
$b_1^{\mp}\pi^{\pm} \times \text{B}(b_1^{\mp} \rightarrow \omega\pi^{\mp})$		(1.09 ± 0.15)	$\times 10^{-5}$		—	DESIG=411
$b_1^0\pi^0 \times \text{B}(b_1^0 \rightarrow \omega\pi^0)$	<	1.9	$\times 10^{-6}$	CL=90%	—	DESIG=431
$b_1^-\rho^+ \times \text{B}(b_1^- \rightarrow \omega\pi^-)$	<	1.4	$\times 10^{-6}$	CL=90%	—	DESIG=467
$b_1^0\rho^0 \times \text{B}(b_1^0 \rightarrow \omega\pi^0)$	<	3.4	$\times 10^{-6}$	CL=90%	—	DESIG=468
$\pi^+\pi^+\pi^-\pi^-\pi^-$	<	3.0	$\times 10^{-3}$	CL=90%	2592	DESIG=64
$a_1(1260)^+\pi^-\pi^-\pi^-\pi^0$		(1.18 ± 0.31)	$\times 10^{-5}$		2336	DESIG=46
$\pi^+\pi^+\pi^-\pi^-\pi^-\pi^0$	<	1.1	%	CL=90%	2572	DESIG=65
Baryon modes						
$p\bar{p}$	<	1.1	$\times 10^{-7}$	CL=90%	2467	NODE=S042;CLUMP=F DESIG=29
$p\bar{p}\pi^+\pi^-$	<	2.5	$\times 10^{-4}$	CL=90%	2406	DESIG=32
$p\bar{p}K^0$		(2.66 ± 0.32)	$\times 10^{-6}$		2347	DESIG=220
$\Theta(1540)^+\bar{p} \times \text{B}(\Theta(1540)^+ \rightarrow pK_S^0)$	[o]	< 5	$\times 10^{-8}$	CL=90%	2318	DESIG=307
$f_J(2220)K^0 \times \text{B}(f_J(2220) \rightarrow p\bar{p})$	<	4.5	$\times 10^{-7}$	CL=90%	2135	DESIG=414
$p\bar{p}K^*(892)^0$		(1.24 ± 0.28)	$\times 10^{-6}$		2216	DESIG=277
$f_J(2220)K_0^* \times \text{B}(f_J(2220) \rightarrow p\bar{p})$	<	1.5	$\times 10^{-7}$	CL=90%	—	DESIG=415
$p\bar{\Lambda}\pi^-$		(3.14 ± 0.29)	$\times 10^{-6}$		2401	DESIG=33
$p\bar{\Sigma}^-(1385)^-$	<	2.6	$\times 10^{-7}$	CL=90%	2363	DESIG=412
$\Delta^0\bar{\Lambda}$	<	9.3	$\times 10^{-7}$	CL=90%	2364	DESIG=413
$p\bar{\Lambda}K^-$	<	8.2	$\times 10^{-7}$	CL=90%	2308	DESIG=251
$p\bar{\Sigma}^0\pi^-$	<	3.8	$\times 10^{-6}$	CL=90%	2383	DESIG=252
$\bar{\Lambda}\Lambda$	<	3.2	$\times 10^{-7}$	CL=90%	2392	DESIG=186
$\bar{\Lambda}\Lambda K^0$		(4.8 ± 1.0)	$\times 10^{-6}$		2250	DESIG=455
$\bar{\Lambda}\Lambda K^{*0}$		(2.5 ± 0.9)	$\times 10^{-6}$		2098	DESIG=456
$\bar{\Lambda}\Lambda D^0$		(1.1 ± 0.6)	$\times 10^{-5}$		1661	DESIG=457
$\Delta^0\bar{\Delta}^0$	<	1.5	$\times 10^{-3}$	CL=90%	2335	DESIG=47
$\Delta^{++}\bar{\Delta}^{--}$	<	1.1	$\times 10^{-4}$	CL=90%	2335	DESIG=48
$\bar{D}^0 p\bar{p}$		(1.04 ± 0.07)	$\times 10^{-4}$		1863	DESIG=226
$D_s^-\bar{\Lambda}p$		(2.8 ± 0.9)	$\times 10^{-5}$		1710	DESIG=389
$\bar{D}^*(2007)^0 p\bar{p}$		(9.9 ± 1.1)	$\times 10^{-5}$		1788	DESIG=227
$D^*(2010)^- p\bar{n}$		(1.4 ± 0.4)	$\times 10^{-3}$		1785	DESIG=198
$D^- p\bar{p}\pi^+$		(3.32 ± 0.31)	$\times 10^{-4}$		1786	DESIG=362
$D^*(2010)^- p\bar{p}\pi^+$		(4.7 ± 0.5)	$\times 10^{-4}$	S=1.2	1707	DESIG=197
$\bar{D}^0 p\bar{p}\pi^+\pi^-$		(3.0 ± 0.5)	$\times 10^{-4}$		1708	DESIG=509
$\bar{D}^{*0} p\bar{p}\pi^+\pi^-$		(1.9 ± 0.5)	$\times 10^{-4}$		1623	DESIG=510

$\Theta_c \bar{p} \pi^+ \times B(\Theta_c \rightarrow D^- p)$	<	9	$\times 10^{-6}$	CL=90%	-	DESIG=364
$\Theta_c \bar{p} \pi^+ \times B(\Theta_c \rightarrow D^{*-} p)$	<	1.4	$\times 10^{-5}$	CL=90%	-	DESIG=365
$\bar{\Sigma}_c^{--} \Delta^{++}$	<	1.0	$\times 10^{-3}$	CL=90%	1839	DESIG=123
$\bar{\Lambda}_c^- p \pi^+ \pi^-$	(	1.3 \pm 0.4	) $\times 10^{-3}$		1934	DESIG=161
$\bar{\Lambda}_c^- p$	(	2.0 \pm 0.4	) $\times 10^{-5}$		2021	DESIG=157
$\bar{\Lambda}_c^- p \pi^0$	(	1.9 \pm 0.5	) $\times 10^{-4}$		1982	DESIG=158
$\Sigma_c(2455)^- p$	<	3.0	$\times 10^{-5}$		-	DESIG=487
$\bar{\Lambda}_c^- p \pi^+ \pi^- \pi^0$	<	5.07	$\times 10^{-3}$	CL=90%	1882	DESIG=159
$\bar{\Lambda}_c^- p \pi^+ \pi^- \pi^+ \pi^-$	<	2.74	$\times 10^{-3}$	CL=90%	1821	DESIG=160
$\bar{\Lambda}_c^- p \pi^+ \pi^-$	(	1.12 \pm 0.32	) $\times 10^{-3}$		1934	DESIG=359
$\bar{\Lambda}_c^- p \pi^+ \pi^-$ (nonresonant)	(	6.4 \pm 1.9	) $\times 10^{-4}$		1934	DESIG=360
$\bar{\Sigma}_c(2520)^{--} p \pi^+$	(	1.2 \pm 0.4	) $\times 10^{-4}$		1860	DESIG=236
$\bar{\Sigma}_c(2520)^0 p \pi^-$	<	3.8	$\times 10^{-5}$	CL=90%	1860	DESIG=238
$\bar{\Sigma}_c(2455)^0 p \pi^-$	(	1.5 \pm 0.5	) $\times 10^{-4}$		1895	DESIG=223
$\bar{\Sigma}_c(2455)^0 N^0 \times B(N^0 \rightarrow p \pi^-)$	(	8.0 \pm 2.9	) $\times 10^{-5}$		-	DESIG=445
$\bar{\Sigma}_c(2455)^{--} p \pi^+$	(	2.2 \pm 0.7	) $\times 10^{-4}$		1895	DESIG=224
$\Lambda_c^- p K^+ \pi^-$	(	4.3 \pm 1.4	) $\times 10^{-5}$		-	DESIG=469
$\bar{\Sigma}_c(2455)^{--} p K^+ \times B(\bar{\Sigma}_c^{--} \rightarrow \bar{\Lambda}_c^- \pi^-)$	(	1.1 \pm 0.4	) $\times 10^{-5}$		1754	DESIG=470
$\Lambda_c^- p K^*(892)^0$	<	2.42	$\times 10^{-5}$	CL=90%	-	DESIG=471
$\bar{\Lambda}_c^- \Lambda K^+$	(	3.8 \pm 1.3	) $\times 10^{-5}$		1767	DESIG=493
$\bar{\Lambda}_c^- \Lambda_c^+$	<	6.2	$\times 10^{-5}$	CL=90%	1319	DESIG=417
$\bar{\Lambda}_c(2593)^- / \bar{\Lambda}_c(2625)^- p$	<	1.1	$\times 10^{-4}$	CL=90%	-	DESIG=225
$\bar{\Xi}_c^- \Lambda_c^+ \times B(\bar{\Xi}_c^- \rightarrow \bar{\Xi}^+ \pi^- \pi^-)$	(	2.2 \pm 2.3	) $\times 10^{-5}$	S=1.9	1147	DESIG=358
$\Lambda_c^+ \Lambda_c^- K^0$	(	5.4 \pm 3.2	) $\times 10^{-4}$		-	DESIG=356

Lepton Family number (*LF*) or Lepton number (*L*) or Baryon number (*B*) violating modes, or/and $\Delta B = 1$ weak neutral current (*B1*) modes

NODE=S042;CLUMP=G

$\gamma\gamma$	<i>B1</i>	<	3.2	$\times 10^{-7}$	CL=90%	2640	DESIG=141	
$e^+ e^-$	<i>B1</i>	<	8.3	$\times 10^{-8}$	CL=90%	2640	DESIG=6	
$e^+ e^- \gamma$	<i>B1</i>	<	1.2	$\times 10^{-7}$	CL=90%	2640	DESIG=404	
$\mu^+ \mu^-$	<i>B1</i>	<	8.0	$\times 10^{-10}$	CL=90%	2638	DESIG=7	
$\mu^+ \mu^- \gamma$	<i>B1</i>	<	1.6	$\times 10^{-7}$	CL=90%	2638	DESIG=405	
$\tau^+ \tau^-$	<i>B1</i>	<	4.1	$\times 10^{-3}$	CL=90%	1952	DESIG=336	
$\pi^0 \ell^+ \ell^-$	<i>B1</i>	<	1.2	$\times 10^{-7}$	CL=90%	2638	DESIG=382	
$\pi^0 e^+ e^-$	<i>B1</i>	<	1.4	$\times 10^{-7}$	CL=90%	2638	DESIG=380	
$\pi^0 \mu^+ \mu^-$	<i>B1</i>	<	1.8	$\times 10^{-7}$	CL=90%	2634	DESIG=381	
$\pi^0 \nu \bar{\nu}$	<i>B1</i>	<	2.2	$\times 10^{-4}$	CL=90%	2638	DESIG=406	
$K^0 \ell^+ \ell^-$	<i>B1</i>	[a]	(3.1 \pm 0.8)	$\times 10^{-7}$		2616	DESIG=275	
$K^0 e^+ e^-$	<i>B1</i>	(	1.6 \pm 1.0	) $\times 10^{-7}$		2616	DESIG=18
$K^0 \mu^+ \mu^-$	<i>B1</i>	(	3.4 \pm 0.5	) $\times 10^{-7}$		2612	DESIG=17
$K^0 \nu \bar{\nu}$	<i>B1</i>	<	5.6	$\times 10^{-5}$	CL=90%	2616	DESIG=407	
$\rho^0 \nu \bar{\nu}$	<i>B1</i>	<	4.4	$\times 10^{-4}$	CL=90%	2583	DESIG=408	
$K^*(892)^0 \ell^+ \ell^-$	<i>B1</i>	[a]	(9.9 \pm 1.2)	$\times 10^{-7}$		2564	DESIG=276	
$K^*(892)^0 e^+ e^-$	<i>B1</i>	(	1.03 \pm 0.19	) $\times 10^{-6}$		2564	DESIG=82
$K^*(892)^0 \mu^+ \mu^-$	<i>B1</i>	(	1.06 \pm 0.10	) $\times 10^{-6}$		2560	DESIG=71
$K^*(892)^0 \nu \bar{\nu}$	<i>B1</i>	<	1.2	$\times 10^{-4}$	CL=90%	2564	DESIG=152	
$\phi \nu \bar{\nu}$	<i>B1</i>	<	5.8	$\times 10^{-5}$	CL=90%	2541	DESIG=409	
$e^\pm \mu^\mp$	<i>LF</i>	[n]	<	6.4	$\times 10^{-8}$	CL=90%	2639	DESIG=8
$\pi^0 e^\pm \mu^\mp$	<i>LF</i>	<	1.4	$\times 10^{-7}$	CL=90%	2637	DESIG=383	
$K^0 e^\pm \mu^\mp$	<i>LF</i>	<	2.7	$\times 10^{-7}$	CL=90%	2615	DESIG=221	

$K^*(892)^0 e^+ \mu^-$	LF	<	5.3	$\times 10^{-7}$ CL=90%	2563	DESIG=334
$K^*(892)^0 e^- \mu^+$	LF	<	3.4	$\times 10^{-7}$ CL=90%	2563	DESIG=335
$K^*(892)^0 e^\pm \mu^\mp$	LF	<	5.8	$\times 10^{-7}$ CL=90%	2563	DESIG=222
$e^\pm \tau^\mp$	LF	[n]	< 2.8	$\times 10^{-5}$ CL=90%	2341	DESIG=121
$\mu^\pm \tau^\mp$	LF	[n]	< 2.2	$\times 10^{-5}$ CL=90%	2339	DESIG=122
invisible	$B1$	<	2.4	$\times 10^{-5}$ CL=90%	—	DESIG=284
$\nu \bar{\nu} \gamma$	$B1$	<	1.7	$\times 10^{-5}$ CL=90%	2640	DESIG=285
$\Lambda_c^+ \mu^-$	L,B	<	1.8	$\times 10^{-6}$ CL=90%	2143	DESIG=491
$\Lambda_c^+ e^-$	L,B	<	5	$\times 10^{-6}$ CL=90%	2145	DESIG=492

B^\pm/B^0 ADMIXTURE

CP violation

$$\begin{aligned}
A_{CP}(B \rightarrow K^*(892)\gamma) &= -0.003 \pm 0.017 \\
A_{CP}(b \rightarrow s\gamma) &= -0.008 \pm 0.029 \\
A_{CP}(b \rightarrow (s+d)\gamma) &= -0.01 \pm 0.05 \\
A_{CP}(B \rightarrow X_s \ell^+ \ell^-) &= -0.22 \pm 0.26 \\
A_{CP}(B \rightarrow K^* e^+ e^-) &= -0.18 \pm 0.15 \\
A_{CP}(B \rightarrow K^* \mu^+ \mu^-) &= -0.03 \pm 0.13 \\
A_{CP}(B \rightarrow K^* \ell^+ \ell^-) &= -0.04 \pm 0.07 \\
A_{CP}(B \rightarrow \eta \text{anything}) &= -0.13^{+0.04}_{-0.05}
\end{aligned}$$

The branching fraction measurements are for an admixture of B mesons at the $\Upsilon(4S)$. The values quoted assume that $B(\Upsilon(4S) \rightarrow B\bar{B}) = 100\%$.

For inclusive branching fractions, e.g., $B \rightarrow D^\pm \text{anything}$, the treatment of multiple D 's in the final state must be defined. One possibility would be to count the number of events with one-or-more D 's and divide by the total number of B 's. Another possibility would be to count the total number of D 's and divide by the total number of B 's, which is the definition of average multiplicity. The two definitions are identical if only one D is allowed in the final state. Even though the "one-or-more" definition seems sensible, for practical reasons inclusive branching fractions are almost always measured using the multiplicity definition. For heavy final state particles, authors call their results inclusive branching fractions while for light particles some authors call their results multiplicities. In the B sections, we list all results as inclusive branching fractions, adopting a multiplicity definition. This means that inclusive branching fractions can exceed 100% and that inclusive partial widths can exceed total widths, just as inclusive cross sections can exceed total cross section.

\bar{B} modes are charge conjugates of the modes below. Reactions indicate the weak decay vertex and do not include mixing.

B DECAY MODES	Fraction (Γ_i/Γ)	Scale factor/ Confidence level (MeV/c)	p
Semileptonic and leptonic modes			
$e^+ \nu_e \text{anything}$	[p] (10.72 \pm 0.13) %	—	NODE=S049;CLUMP=L DESIG=100
$\bar{p} e^+ \nu_e \text{anything}$	< 5.9 $\times 10^{-4}$ CL=90%	—	DESIG=140
$\mu^+ \nu_\mu \text{anything}$	[p] (10.72 \pm 0.13) %	—	DESIG=102
$\ell^+ \nu_\ell \text{anything}$	[a,p] (10.72 \pm 0.13) %	—	DESIG=131
$D^- \ell^+ \nu_\ell \text{anything}$	[a] (2.8 \pm 0.9) %	—	DESIG=148
$\bar{D}^0 \ell^+ \nu_\ell \text{anything}$	[a] (7.2 \pm 1.4) %	—	DESIG=147
$\bar{D} \ell^+ \nu_\ell$	(2.39 \pm 0.12) %	2310	DESIG=274
$\bar{D} \tau^+ \nu_\tau$	(1.05 \pm 0.18) %	1911	DESIG=267
$D^{*-} \ell^+ \nu_\ell \text{anything}$	[q] (6.7 \pm 1.3) $\times 10^{-3}$	—	DESIG=182
$D^* \ell^+ \nu_\ell$	[r] (4.95 \pm 0.11) %	2257	DESIG=280;OUR EVAL; \rightarrow UNCHECKED \leftarrow
$D^* \tau^+ \nu_\tau$	(1.64 \pm 0.15) %	1837	DESIG=268
$\bar{D}^{**} \ell^+ \nu_\ell$	[a,s] (2.7 \pm 0.7) %	—	DESIG=217
$\bar{D}_1(2420) \ell^+ \nu_\ell \text{anything}$	(3.8 \pm 1.3) $\times 10^{-3}$ S=2.4	—	DESIG=11

$D\pi\ell^+\nu_\ell$ anything + $D^*\pi\ell^+\nu_\ell$ anything	(2.6 \pm 0.5) %	S=1.5	-	DESIG=34
$D\pi\ell^+\nu_\ell$ anything	(1.5 \pm 0.6) %	-	-	DESIG=232
$D^*\pi\ell^+\nu_\ell$ anything	(1.9 \pm 0.4) %	-	-	DESIG=233
$\overline{D}_2^*(2460)\ell^+\nu_\ell$ anything	(4.4 \pm 1.6) $\times 10^{-3}$	-	-	DESIG=12
$D^{*-}\pi^+\ell^+\nu_\ell$ anything	(1.00 \pm 0.34) %	-	-	DESIG=13
$D_s^-\ell^+\nu_\ell$ anything	[a] < 7 $\times 10^{-3}$ CL=90%	-	-	DESIG=36
$D_s^-\ell^+\nu_\ell K^+$ anything	[a] < 5 $\times 10^{-3}$ CL=90%	-	-	DESIG=37
$D_s^-\ell^+\nu_\ell K^0$ anything	[a] < 7 $\times 10^{-3}$ CL=90%	-	-	DESIG=38
$X_c\ell^+\nu_\ell$	(10.51 \pm 0.13) %	-	-	DESIG=260
$X_u\ell^+\nu_\ell$	(2.12 \pm 0.31) $\times 10^{-3}$	-	-	DESIG=259
$K^+\ell^+\nu_\ell$ anything	[a] (6.2 \pm 0.5) %	-	-	DESIG=117
$K^-\ell^+\nu_\ell$ anything	[a] (10 \pm 4) $\times 10^{-3}$	-	-	DESIG=118
$K^0/\overline{K}^0\ell^+\nu_\ell$ anything	[a] (4.5 \pm 0.5) %	-	-	DESIG=119
D, D^*, or D_s modes				
D^\pm anything	(23.7 \pm 1.3) %	-	-	NODE=S049;CLUMP=M DESIG=116
D^0/\overline{D}^0 anything	(62.7 \pm 2.9) %	S=1.3	-	DESIG=107
$D^*(2010)^\pm$ anything	(22.5 \pm 1.5) %	-	-	DESIG=111
$D^*(2007)^0$ anything	(26.0 \pm 2.7) %	-	-	DESIG=35
D_s^\pm anything	[n] (8.3 \pm 0.8) %	-	-	DESIG=113
$D_s^{*\pm}$ anything	(6.3 \pm 1.0) %	-	-	DESIG=57
$D_s^{*\pm}\overline{D}^{(*)}$	(3.4 \pm 0.6) %	-	-	DESIG=58
$D^{(*)}\overline{D}^{(*)}K^0 +$ $D^{(*)}\overline{D}^{(*)}K^\pm$	[n,t] (7.1 \pm 2.7) %	-	-	DESIG=51
$b \rightarrow c\bar{c}s$	(22 \pm 4) %	-	-	DESIG=31
$D_s^{(*)}\overline{D}^{(*)}$	[n,t] (3.9 \pm 0.4) %	-	-	DESIG=52
$D^*D^*(2010)^\pm$	[n] < 5.9 $\times 10^{-3}$ CL=90%	1711	-	DESIG=54
$DD^*(2010)^\pm + D^*D^\pm$	[n] < 5.5 $\times 10^{-3}$ CL=90%	-	-	DESIG=55
DD^\pm	[n] < 3.1 $\times 10^{-3}$ CL=90%	1866	-	DESIG=56
$D_s^{(*)\pm}\overline{D}^{(*)}X(n\pi^\pm)$	[n,t] (9 \pm 5) %	-	-	DESIG=53
$D^*(2010)\gamma$	< 1.1 $\times 10^{-3}$ CL=90%	2257	-	DESIG=180
$D_s^+\pi^-, D_s^{*+}\pi^-, D_s^+\rho^-,$ $D_s^{*+}\rho^-, D_s^+\pi^0, D_s^{*+}\pi^0,$ $D_s^+\eta, D_s^{*+}\eta, D_s^+\rho^0,$ $D_s^{*+}\rho^0, D_s^+\omega, D_s^{*+}\omega$	[n] < 4 $\times 10^{-4}$ CL=90%	-	-	DESIG=210
$D_{s1}(2536)^+$ anything	< 9.5 $\times 10^{-3}$ CL=90%	-	-	DESIG=32
Charmonium modes				
$J/\psi(1S)$ anything	(1.094 \pm 0.032) %	S=1.1	-	NODE=S049;CLUMP=N DESIG=106
$J/\psi(1S)$ (direct) anything	(7.8 \pm 0.4) $\times 10^{-3}$	S=1.1	-	DESIG=23
$\psi(2S)$ anything	(3.07 \pm 0.21) $\times 10^{-3}$	-	-	DESIG=124
$\chi_{c1}(1P)$ anything	(3.86 \pm 0.27) $\times 10^{-3}$	-	-	DESIG=170
$\chi_{c1}(1P)$ (direct) anything	(3.20 \pm 0.25) $\times 10^{-3}$	-	-	DESIG=24
$\chi_{c2}(1P)$ anything	(1.3 \pm 0.4) $\times 10^{-3}$	S=1.9	-	DESIG=21
$\chi_{c2}(1P)$ (direct) anything	(1.65 \pm 0.31) $\times 10^{-3}$	-	-	DESIG=247
$\eta_c(1S)$ anything	< 9 $\times 10^{-3}$ CL=90%	-	-	DESIG=22
$KX(3872) \times B(X \rightarrow D^0\overline{D}^0\pi^0)$	(1.2 \pm 0.4) $\times 10^{-4}$	1141	-	DESIG=264
$KX(3872) \times B(X \rightarrow D^{*0}D^0)$	(8.0 \pm 2.2) $\times 10^{-5}$	1141	-	DESIG=272
$KX(3940) \times B(X \rightarrow D^{*0}D^0)$	< 6.7 $\times 10^{-5}$ CL=90%	1084	-	DESIG=273
$KX(3915) \times B(X \rightarrow \omega J/\psi)$	[u] (7.1 \pm 3.4) $\times 10^{-5}$	1103	-	DESIG=262

K or K^* modes					
K^\pm anything	[n]	(78.9 \pm 2.5) %		—	NODE=S049;CLUMP=O
K^+ anything		(66 \pm 5) %		—	DESIG=105
K^- anything		(13 \pm 4) %		—	DESIG=120
K^0/\bar{K}^0 anything	[n]	(64 \pm 4) %		—	DESIG=121
$K^*(892)^\pm$ anything		(18 \pm 6) %		—	DESIG=122
$K^*(892)^0/\bar{K}^*(892)^0$ anything	[n]	(14.6 \pm 2.6) %		—	DESIG=223
$K^*(892)\gamma$		(4.2 \pm 0.6) $\times 10^{-5}$	2564	—	DESIG=224
$\eta K\gamma$		(8.5 \pm 1.8) $\times 10^{-6}$	2588	—	DESIG=126
$K_1(1400)\gamma$	<	1.27 $\times 10^{-4}$	CL=90%	2453	DESIG=263
$K_2(1430)\gamma$		(1.7 \pm 0.6) $\times 10^{-5}$	2447	—	DESIG=127
$K_2(1770)\gamma$	<	1.2 $\times 10^{-3}$	CL=90%	2342	DESIG=128
$K_3^*(1780)\gamma$	<	3.7 $\times 10^{-5}$	CL=90%	2341	DESIG=179
$K_4^*(2045)\gamma$	<	1.0 $\times 10^{-3}$	CL=90%	2244	DESIG=129
$K\eta'(958)$		(8.3 \pm 1.1) $\times 10^{-5}$	2528	—	DESIG=178
$K^*(892)\eta'(958)$		(4.1 \pm 1.1) $\times 10^{-6}$	2472	—	DESIG=226
$K\eta$	<	5.2 $\times 10^{-6}$	CL=90%	2588	DESIG=227
$K^*(892)\eta$		(1.8 \pm 0.5) $\times 10^{-5}$	2534	—	DESIG=228
$K\phi\phi$		(2.3 \pm 0.9) $\times 10^{-6}$	2306	—	DESIG=229
$\bar{b} \rightarrow \bar{s}\gamma$		(3.40 \pm 0.21) $\times 10^{-4}$	—	—	DESIG=225
$\bar{b} \rightarrow \bar{d}\gamma$		(9.2 \pm 3.0) $\times 10^{-6}$	—	—	DESIG=270
$b \rightarrow \bar{s}$ gluon	<	6.8 %	CL=90%	—	DESIG=20
η anything		(2.6 \pm 0.5) $\times 10^{-4}$	—	—	DESIG=47
η' anything		(4.2 \pm 0.9) $\times 10^{-4}$	—	—	DESIG=48
K^+ gluon (charmless)	<	1.87 $\times 10^{-4}$	CL=90%	—	DESIG=276
K^0 gluon (charmless)		(1.9 \pm 0.7) $\times 10^{-4}$	—	—	DESIG=277

Light unflavored meson modes

Light unflavored meson modes					
$\rho\gamma$		(1.39 \pm 0.25) $\times 10^{-6}$	S=1.2	2583	NODE=S049;CLUMP=P
$\rho/\omega\gamma$		(1.30 \pm 0.23) $\times 10^{-6}$	S=1.2	—	DESIG=230
π^\pm anything	[n,v]	(358 \pm 7) %	—	—	DESIG=261
π^0 anything		(235 \pm 11) %	—	—	DESIG=220
η anything		(17.6 \pm 1.6) %	—	—	DESIG=240
ρ^0 anything		(21 \pm 5) %	—	—	DESIG=39
ω anything	<	81 %	CL=90%	—	DESIG=221
ϕ anything		(3.43 \pm 0.12) %	—	—	DESIG=222
$\phi K^*(892)$	<	2.2 $\times 10^{-5}$	CL=90%	2460	DESIG=114
π^+ gluon (charmless)		(3.7 \pm 0.8) $\times 10^{-4}$	—	—	DESIG=46

Baryon modes

Baryon modes					
$\Lambda_c^+ / \bar{\Lambda}_c^-$ anything		(4.5 \pm 1.2) %	—	—	NODE=S049;CLUMP=Q
Λ_c^+ anything	<	1.7 %	CL=90%	—	DESIG=115
$\bar{\Lambda}_c^-$ anything	<	9 %	CL=90%	—	DESIG=40
$\Lambda_c^- \ell^+$ anything	<	1.1 $\times 10^{-3}$	CL=90%	—	DESIG=41
$\bar{\Lambda}_c^- e^+$ anything	<	2.3 $\times 10^{-3}$	CL=90%	—	DESIG=281
$\bar{\Lambda}_c^- \mu^+$ anything	<	1.8 $\times 10^{-3}$	CL=90%	—	DESIG=14
$\bar{\Lambda}_c^- p$ anything		(2.6 \pm 0.8) %	—	—	DESIG=282
$\bar{\Lambda}_c^- p e^+ \nu_e$	<	1.0 $\times 10^{-3}$	CL=90%	2021	DESIG=16
$\bar{\Sigma}_c^{--}$ anything		(4.2 \pm 2.4) $\times 10^{-3}$	—	—	DESIG=17
$\bar{\Sigma}_c^-$ anything	<	9.6 $\times 10^{-3}$	CL=90%	—	DESIG=201
$\bar{\Sigma}_c^0$ anything		(4.6 \pm 2.4) $\times 10^{-3}$	—	—	DESIG=202
$\bar{\Sigma}_c^0 N$ ($N = p$ or n)	<	1.5 $\times 10^{-3}$	CL=90%	1938	DESIG=203
Ξ_c^0 anything		(1.93 \pm 0.30) $\times 10^{-4}$	S=1.1	—	DESIG=205
Ξ_c^0 anything		$\times B(\Xi_c^0 \rightarrow \Xi^- \pi^+)$	—	—	DESIG=44
Ξ_c^+ anything		(4.5 \pm 1.3) $\times 10^{-4}$	—	—	DESIG=45
Ξ_c^+ anything		$\times B(\Xi_c^+ \rightarrow \Xi^- \pi^+ \pi^+)$	—	—	DESIG=46
p/\bar{p} anything	[n]	(8.0 \pm 0.4) %	—	—	DESIG=108
p/\bar{p} (direct) anything	[n]	(5.5 \pm 0.5) %	—	—	DESIG=132
$\Lambda/\bar{\Lambda}$ anything	[n]	(4.0 \pm 0.5) %	—	—	DESIG=109
$\Xi^-/\bar{\Xi}^+$ anything	[n]	(2.7 \pm 0.6) $\times 10^{-3}$	—	—	DESIG=133
baryons anything		(6.8 \pm 0.6) %	—	—	DESIG=134
$p\bar{p}$ anything		(2.47 \pm 0.23) %	—	—	DESIG=135
$\Lambda\bar{p}/\bar{\Lambda}p$ anything	[n]	(2.5 \pm 0.4) %	—	—	DESIG=136
$\Lambda\bar{\Lambda}$ anything	<	5 $\times 10^{-3}$	CL=90%	—	DESIG=137

Lepton Family number (*LF*) violating modes or $\Delta B = 1$ weak neutral current (*B1*) modes

NODE=S049;CLUMP=R

se^+e^-	<i>B1</i>	(4.7 \pm 1.3) $\times 10^{-6}$	—	DESIG=103
$s\mu^+\mu^-$	<i>B1</i>	(4.3 \pm 1.2) $\times 10^{-6}$	—	DESIG=104
$s\ell^+\ell^-$	<i>B1</i>	[a] (4.5 \pm 1.0) $\times 10^{-6}$	—	DESIG=59
$\pi\ell^+\ell^-$	<i>B1</i>	< 6.2 $\times 10^{-8}$	CL=90% 2638	DESIG=266
Ke^+e^-	<i>B1</i>	(4.4 \pm 0.6) $\times 10^{-7}$	2617	DESIG=234
$K^*(892)e^+e^-$	<i>B1</i>	(1.19 \pm 0.20) $\times 10^{-6}$	S=1.2 2564	DESIG=235
$K\mu^+\mu^-$	<i>B1</i>	(4.4 \pm 0.4) $\times 10^{-7}$	2612	DESIG=236
$K^*(892)\mu^+\mu^-$	<i>B1</i>	(1.06 \pm 0.09) $\times 10^{-6}$	2560	DESIG=237
$K\ell^+\ell^-$	<i>B1</i>	(4.8 \pm 0.4) $\times 10^{-7}$	2617	DESIG=238
$K^*(892)\ell^+\ell^-$	<i>B1</i>	(1.05 \pm 0.10) $\times 10^{-6}$	2564	DESIG=239
$K\nu\bar{\nu}$	<i>B1</i>	< 1.4 $\times 10^{-5}$	CL=90% 2617	DESIG=275
$K^*\nu\bar{\nu}$	<i>B1</i>	< 8 $\times 10^{-5}$	CL=90% —	DESIG=269
$se^\pm\mu^\mp$	<i>LF</i>	[n] < 2.2 $\times 10^{-5}$	CL=90% —	DESIG=33
$\pi e^\pm\mu^\mp$	<i>LF</i>	< 9.2 $\times 10^{-8}$	CL=90% 2637	DESIG=243
$\rho e^\pm\mu^\mp$	<i>LF</i>	< 3.2 $\times 10^{-6}$	CL=90% 2582	DESIG=244
$Ke^\pm\mu^\mp$	<i>LF</i>	< 3.8 $\times 10^{-8}$	CL=90% 2616	DESIG=241
$K^*(892)e^\pm\mu^\mp$	<i>LF</i>	< 5.1 $\times 10^{-7}$	CL=90% 2563	DESIG=242

$B^\pm/B^0/B_s^0/b$ -baryon ADMIXTURE

NODE=S051

These measurements are for an admixture of bottom particles at high energy (LHC, LEP, Tevatron, $Sp\bar{p}S$).

$$\text{Mean life } \tau = (1.568 \pm 0.009) \times 10^{-12} \text{ s}$$

$$\text{Mean life } \tau = (1.72 \pm 0.10) \times 10^{-12} \text{ s} \quad \text{Charged } b\text{-hadron admixture}$$

$$\text{Mean life } \tau = (1.58 \pm 0.14) \times 10^{-12} \text{ s} \quad \text{Neutral } b\text{-hadron admixture}$$

$$\tau_{\text{charged } b\text{-hadron}}/\tau_{\text{neutral } b\text{-hadron}} = 1.09 \pm 0.13$$

$$|\Delta\tau_b|/\tau_{b,\bar{b}} = -0.001 \pm 0.014$$

$$\text{Re}(\epsilon_b) / (1 + |\epsilon_b|^2) = (-2.0 \pm 0.5) \times 10^{-3}$$

The branching fraction measurements are for an admixture of *B* mesons and baryons at energies above the $\Upsilon(4S)$. Only the highest energy results (LHC, LEP, Tevatron, $Sp\bar{p}S$) are used in the branching fraction averages. In the following, we assume that the production fractions are the same at the LHC, LEP, and at the Tevatron.

For inclusive branching fractions, e.g., $B \rightarrow D^\pm$ anything, the values usually are multiplicities, not branching fractions. They can be greater than one.

The modes below are listed for a \bar{b} initial state. *b* modes are their charge conjugates. Reactions indicate the weak decay vertex and do not include mixing.

\bar{b} DECAY MODES	Fraction (Γ_i/Γ)	Scale factor/ Confidence level	p (MeV/c)
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PRODUCTION FRACTIONS

NODE=S051;CLUMP=P

The production fractions for weakly decaying *b*-hadrons at high energy have been calculated from the best values of mean lives, mixing parameters, and branching fractions in this edition by the Heavy Flavor Averaging Group (HFAG) as described in the note " B^0 - \bar{B}^0 Mixing" in the B^0 Particle Listings. The production fractions in *b*-hadronic *Z* decay or $p\bar{p}$ collisions at the Tevatron are also listed at the end of the section. Values assume

$$B(\bar{b} \rightarrow B^+) = B(\bar{b} \rightarrow B^0)$$

$$B(\bar{b} \rightarrow B^+) + B(\bar{b} \rightarrow B^0) + B(\bar{b} \rightarrow B_s^0) + B(b \rightarrow b\text{-baryon}) = 100 \text{ \%}.$$

The correlation coefficients between production fractions are also reported:

$$\text{cor}(B_s^0, b\text{-baryon}) = -0.277$$

NODE=S051

$$\begin{aligned} \text{cor}(B_s^0, B^\pm = B^0) &= -0.112 \\ \text{cor}(b\text{-baryon}, B^\pm = B^0) &= -0.924. \end{aligned}$$

The notation for production fractions varies in the literature (f_d , d_{B^0} , $f(b \rightarrow \bar{B}^0)$, $\text{Br}(b \rightarrow \bar{B}^0)$). We use our own branching fraction notation here, $B(\bar{b} \rightarrow B^0)$.

Note these production fractions are b -hadronization fractions, not the conventional branching fractions of b -quark to a B -hadron, which may have considerable dependence on the initial and final state kinematic and production environment.

B^+	(40.2 \pm 0.7) %	—	DESIG=1;OUR EVAL;→ UNCHECKED ←
B^0	(40.2 \pm 0.7) %	—	DESIG=2;OUR EVAL;→ UNCHECKED ←
B_s^0	(10.4 \pm 0.6) %	—	DESIG=3;OUR EVAL;→ UNCHECKED ←
$b\text{-baryon}$	(9.3 \pm 1.5) %	—	DESIG=4;OUR EVAL;→ UNCHECKED ←

DECAY MODES

Semileptonic and leptonic modes

ν anything	(23.1 \pm 1.5) %	—	DESIG=23
$\ell^+ \nu_\ell$ anything	[a] (10.69 \pm 0.22) %	—	DESIG=131
$e^+ \nu_e$ anything	(10.86 \pm 0.35) %	—	DESIG=100
$\mu^+ \nu_\mu$ anything	(10.95 \pm 0.29) %	—	DESIG=102
$D^- \ell^+ \nu_\ell$ anything	[a] (2.27 \pm 0.35) %	S=1.7	—
$D^- \pi^+ \ell^+ \nu_\ell$ anything	(4.9 \pm 1.9) $\times 10^{-3}$	—	DESIG=58
$D^- \pi^- \ell^+ \nu_\ell$ anything	(2.6 \pm 1.6) $\times 10^{-3}$	—	DESIG=61
$\bar{D}^0 \ell^+ \nu_\ell$ anything	[a] (6.84 \pm 0.35) %	—	DESIG=16
$\bar{D}^0 \pi^- \ell^+ \nu_\ell$ anything	(1.07 \pm 0.27) %	—	DESIG=57
$\bar{D}^0 \pi^+ \ell^+ \nu_\ell$ anything	(2.3 \pm 1.6) $\times 10^{-3}$	—	DESIG=60
$D^{*-} \ell^+ \nu_\ell$ anything	[a] (2.75 \pm 0.19) %	—	DESIG=17
$D^{*-} \pi^- \ell^+ \nu_\ell$ anything	(6 \pm 7) $\times 10^{-4}$	—	DESIG=62
$D^{*-} \pi^+ \ell^+ \nu_\ell$ anything	(4.8 \pm 1.0) $\times 10^{-3}$	—	DESIG=59
$\bar{D}_j^0 \ell^+ \nu_\ell$ anything \times	[a,x] (2.6 \pm 0.9) $\times 10^{-3}$	—	DESIG=18
$B(\bar{D}_j^0 \rightarrow D^{*+} \pi^-)$			
$D_j^- \ell^+ \nu_\ell$ anything \times	[a,x] (7.0 \pm 2.3) $\times 10^{-3}$	—	DESIG=19
$B(D_j^- \rightarrow D^0 \pi^-)$			
$\bar{D}_2^*(2460)^0 \ell^+ \nu_\ell$ anything	< 1.4 $\times 10^{-3}$ CL=90%	—	DESIG=21
$\times B(\bar{D}_2^*(2460)^0 \rightarrow D^{*-} \pi^+)$			
$D_2^*(2460)^- \ell^+ \nu_\ell$ anything	(4.2 \pm 1.5) $\times 10^{-3}$	—	DESIG=22
$\times B(D_2^*(2460)^- \rightarrow D^0 \pi^-)$			
$\bar{D}_2^*(2460)^0 \ell^+ \nu_\ell$ anything	(1.6 \pm 0.8) $\times 10^{-3}$	—	DESIG=220
$\times B(\bar{D}_2^*(2460)^0 \rightarrow D^- \pi^+)$			
charmless $\ell \bar{\nu}_\ell$	[a] (1.7 \pm 0.5) $\times 10^{-3}$	—	DESIG=31
$\tau^+ \nu_\tau$ anything	(2.41 \pm 0.23) %	—	DESIG=172
$D^{*-} \tau \nu_\tau$ anything	(9 \pm 4) $\times 10^{-3}$	—	DESIG=64
$\bar{c} \rightarrow \ell^- \bar{\nu}_\ell$ anything	[a] (8.02 \pm 0.19) %	—	DESIG=219
$c \rightarrow \ell^+ \nu$ anything	(1.6 \pm 0.4) %	—	DESIG=66

Charmed meson and baryon modes				NODE=S051;CLUMP=M
\bar{D}^0 anything		(59.8 \pm 2.9) %	-	DESIG=24
$D^0 D_s^\pm$ anything	[n]	(9.1 \pm 4.0) %	-	DESIG=50
$D^\mp D_s^\pm$ anything	[n]	(4.0 \pm 2.3) %	-	DESIG=51
$\bar{D}^0 D^0$ anything	[n]	(5.1 \pm 2.0) %	-	DESIG=47
$D^0 D^\pm$ anything	[n]	(2.7 \pm 1.8) %	-	DESIG=48
$D^\pm D^\mp$ anything	[n]	< 9 $\times 10^{-3}$ CL=90%	-	DESIG=49
D^- anything		(23.3 \pm 1.7) %	-	DESIG=25
$D^*(2010)^+$ anything		(17.3 \pm 2.0) %	-	DESIG=46
$D_1(2420)^0$ anything		(5.0 \pm 1.5) %	-	DESIG=42
$D^*(2010)^\mp D_s^\pm$ anything	[n]	(3.3 \pm 1.6) %	-	DESIG=52
$D^0 D^*(2010)^\pm$ anything	[n]	(3.0 \pm 1.1) %	-	DESIG=53
$D^*(2010)^\pm D^\mp$ anything	[n]	(2.5 \pm 1.2) %	-	DESIG=54
$D^*(2010)^\pm D^*(2010)^\mp$ anything	[n]	(1.2 \pm 0.4) %	-	DESIG=55
$\bar{D} D$ anything		(10 \pm 11) %	-	DESIG=68
$D_2^*(2460)^0$ anything		(4.7 \pm 2.7) %	-	DESIG=43
D_s^- anything		(14.7 \pm 2.1) %	-	DESIG=26
D_s^+ anything		(10.1 \pm 3.1) %	-	DESIG=34
Λ_c^+ anything		(9.7 \pm 2.9) %	-	DESIG=27
\bar{c}/c anything	[v]	(116.2 \pm 3.2) %	-	DESIG=28
Charmonium modes				NODE=S051;CLUMP=N
$J/\psi(1S)$ anything		(1.16 \pm 0.10) %	-	DESIG=106
$\psi(2S)$ anything		(2.83 \pm 0.29) $\times 10^{-3}$	-	DESIG=124
$\chi_{c1}(1P)$ anything		(1.4 \pm 0.4) %	-	DESIG=170
K or K^* modes				NODE=S051;CLUMP=O
$\bar{s}\gamma$		(3.1 \pm 1.1) $\times 10^{-4}$	-	DESIG=185
$\bar{s}\nu\nu$	B1	< 6.4 $\times 10^{-4}$ CL=90%	-	DESIG=65
K^\pm anything		(74 \pm 6) %	-	DESIG=10
K_S^0 anything		(29.0 \pm 2.9) %	-	DESIG=11
Pion modes				NODE=S051;CLUMP=C
π^\pm anything		(397 \pm 21) %	-	DESIG=44
π^0 anything	[v]	(278 \pm 60) %	-	DESIG=5
ϕ anything		(2.82 \pm 0.23) %	-	DESIG=56
Baryon modes				NODE=S051;CLUMP=A
p/\bar{p} anything		(13.1 \pm 1.1) %	-	DESIG=12
$\Lambda/\bar{\Lambda}$ anything		(5.9 \pm 0.6) %	-	DESIG=13
b-baryon anything		(10.2 \pm 2.8) %	-	DESIG=45
Other modes				NODE=S051;CLUMP=B
charged anything	[v]	(497 \pm 7) %	-	DESIG=14
hadron $^+$ hadron $^-$		(1.7 \pm 1.0) $\times 10^{-5}$	-	DESIG=29
charmless		(7 \pm 21) $\times 10^{-3}$	-	DESIG=7
$\Delta B = 1$ weak neutral current (B1) modes				NODE=S051;CLUMP=R
$\mu^+ \mu^-$ anything	B1	< 3.2 $\times 10^{-4}$ CL=90%	-	DESIG=104

B*

$$I(J^P) = \frac{1}{2}(1^-)$$

NODE=S085

I, J, P need confirmation. Quantum numbers shown are quark-model predictions.

$$\begin{aligned} \text{Mass } m_{B^*} &= 5325.2 \pm 0.4 \text{ MeV} \\ m_{B^*} - m_B &= 45.78 \pm 0.35 \text{ MeV} \\ m_{B^{*+}} - m_{B^+} &= 45.0 \pm 0.4 \text{ MeV} \end{aligned}$$

NODE=S085M;DTYPE=M
 NODE=S085DM;DTYPE=D
 NODE=S085DM+;DTYPE=D

B* DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$B\gamma$	dominant	45	NODE=S085215;DESIG=1;OUR EST; → UNCHECKED ←
$B_1(5721)^0$	$I(J^P) = \frac{1}{2}(1^+)$ I, J, P need confirmation.		NODE=M183
$B_1(5721)^0$ MASS = 5723.5 ± 2.0 MeV (S = 1.1)			NODE=M183M;DTYPE=M
$m_{B_1^0} - m_{B^+} = 444.3 \pm 2.0$ MeV (S = 1.1)			NODE=M183DM;DTYPE=D
$B_1(5721)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$B^{*+}\pi^-$	dominant	–	NODE=M183215;DESIG=1
$B_2^*(5747)^0$	$I(J^P) = \frac{1}{2}(2^+)$ I, J, P need confirmation.		NODE=M184
$B_2^*(5747)^0$ MASS = 5743 ± 5 MeV (S = 2.9)			NODE=M184M;DTYPE=M
Full width $\Gamma = 23^{+5}_{-11}$ MeV			NODE=M184W;DTYPE=G
$m_{B_2^{*0}} - m_{B_1^0} = 19 \pm 6$ MeV (S = 3.0)			NODE=M184DM;DTYPE=D
$B_2^*(5747)^0$ DECAY MODES	Fraction (Γ_i/Γ)	p (MeV/c)	
$B^+\pi^-$	dominant	424	NODE=M184215;DESIG=1
$B^{*+}\pi^-$	dominant	–	DESIG=2

NOTES

- [a] An ℓ indicates an e or a μ mode, not a sum over these modes.
- [b] An $CP(\pm 1)$ indicates the $CP=+1$ and $CP=-1$ eigenstates of the D^0 - \bar{D}^0 system.
- [c] D denotes D^0 or \bar{D}^0 .
- [d] D_{CP+}^{*0} decays into $D^0\pi^0$ with the D^0 reconstructed in CP -even eigenstates K^+K^- and $\pi^+\pi^-$.
- [e] \bar{D}^{**} represents an excited state with mass $2.2 < M < 2.8$ GeV/c 2 .
- [f] $X(3872)^+$ is a hypothetical charged partner of the $X(3872)$.
- [g] $\Theta(1710)^{++}$ is a possible narrow pentaquark state and $G(2220)$ is a possible glueball resonance.
- [h] $(\bar{\Lambda}_c^- p)_s$ denotes a low-mass enhancement near 3.35 GeV/c 2 .
- [i] Stands for the possible candidates of $K^*(1410)$, $K_0^*(1430)$ and $K_2^*(1430)$.
- [j] B^0 and B_s^0 contributions not separated. Limit is on weighted average of the two decay rates.
- [k] This decay refers to the coherent sum of resonant and nonresonant $J^P = 0^+$ $K\pi$ components with $1.60 < m_{K\pi} < 2.15$ GeV/c 2 .
- [l] $X(214)$ is a hypothetical particle of mass 214 MeV/c 2 reported by the HyperCP experiment, Physical Review Letters **94** 021801 (2005)
- [n] The value is for the sum of the charge states or particle/antiparticle states indicated.
- [o] $\Theta(1540)^+$ denotes a possible narrow pentaquark state.
- [p] These values are model dependent.
- [q] Here “anything” means at least one particle observed.
- [r] This is a $B(B^0 \rightarrow D^{*-}\ell^+\nu_\ell)$ value.

LINKAGE=DX

LINKAGE=CPE

LINKAGE=DD

LINKAGE=CPD

LINKAGE=DSZ

LINKAGE=RX

LINKAGE=PG

LINKAGE=LP

LINKAGE=KS

LINKAGE=BBS

LINKAGE=MKP

LINKAGE=HCP

LINKAGE=SG

LINKAGE=PQ

LINKAGE=AAA

LINKAGE=LX

LINKAGE=B0V

- [s] D^{**} stands for the sum of the $D(1^1P_1)$, $D(1^3P_0)$, $D(1^3P_1)$, $D(1^3P_2)$, $D(2^1S_0)$, and $D(2^1S_1)$ resonances. LINKAGE=DSS
- [t] $D^{(*)}\bar{D}^{(*)}$ stands for the sum of $D^*\bar{D}^*$, $D^*\bar{D}$, $D\bar{D}^*$, and $D\bar{D}$. LINKAGE=SGG
- [u] $X(3915)$ denotes a near-threshold enhancement in the $\omega J/\psi$ mass spectrum. LINKAGE=YOJ
- [v] Inclusive branching fractions have a multiplicity definition and can be greater than 100%. LINKAGE=M
- [x] D_j represents an unresolved mixture of pseudoscalar and tensor D^{**} (P -wave) states. LINKAGE=DJ